Chapter 4. IFR

Section 1. NAVAID Use Limitations

4-1-1. ALTITUDE AND DISTANCE LIMITATIONS

When specifying a route other than an established airway or route, do not exceed the limitations in the table on any portion of the route which lies within controlled airspace. (For altitude and distance limitations, see TBL 4-1-1, TBL 4-1-2, TBL 4-1-3, and TBL 4-1-4.) (For correct application of altitude and distance limitations see FIG 4-1-1 and FIG 4-1-2.)

REFERENCE-
FAAO 7110.65, Fix Use, Para 4-1-5.
FAAO 7110.65, Methods, Para 5-6-2.

VOR/VORTAC/TACAN NAVAID's
Normal Usable Altitudes and Radius Distances

Class	*Altitude*	*Distance (miles)*
T	12,000 and below	25
L	Below 18,000	40
H	Below 14,500	40
H	14,500 - 17,999	100
H	18,000 - FL 450	130
H	Above FL 450	100

TBL 4-1-1

L/MF Radio Beacon (RBN)
Usable Radius Distances for All Altitudes

Class	*Power (watts)*	*Distance (miles)*
CL	Under 25	15
MH	Under 50	25
H	50 - 1,999	50
HH	2,000 or more	75

TBL 4-1-2

ILS
Usable Height and Distance*

Height (feet) above transmitter	*Distance (miles from transmitter)*
4,500	10 (for glideslope)
4,500	18 (for localizer)
*Use the current flight check height/altitude limitations if different from the above minima.	

TBL 4-1-3

MLS
Usable Height and Distance*

Height (feet) above transmitter	*Distance (miles from transmitter)*
20,000	20 (for glideslope)
20,000	20 (for azimuth)
*Use the current flight check height/altitude limitations if different from the above minima.	

TBL 4-1-4

Application of Altitude and Distance Limitations [Application 1]

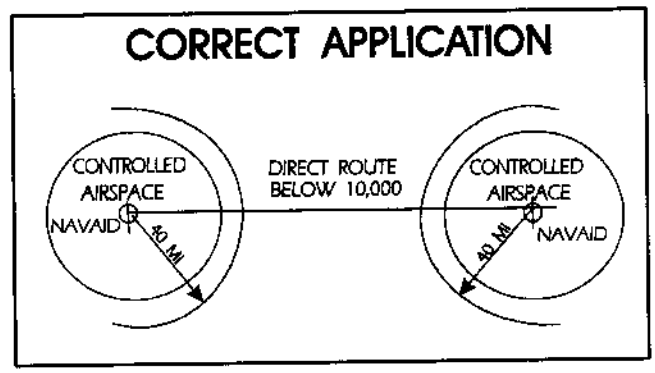

FIG 4-1-1

Application of Altitude and Distance Limitations [Application 2]

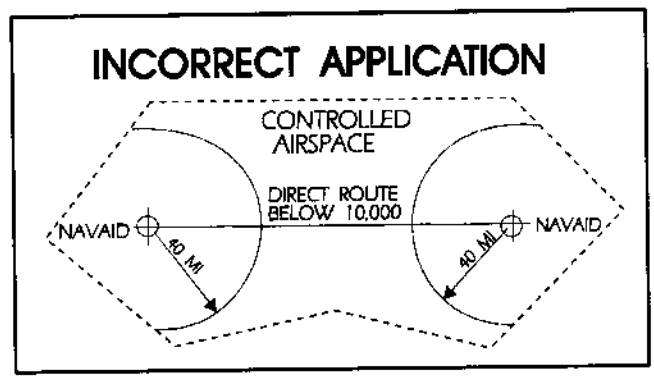

FIG 4-1-2

4-1-2. EXCEPTIONS

Altitude and distance limitations need not be applied when any of the following conditions are met:

a. Routing is initiated by ATC or requested by the pilot and the following is provided:

1. Radar monitoring.

2. As necessary, course guidance unless the aircraft is /E, /F, or /G equipped.

NOTE-
1. Para 4-4-1, Route Use, requires radar monitoring be provided at FL 450 and below to aircraft on random (impromptu) RNAV routes.
Para 5-5-1, Application, requires radar separation be provided for these routes at FL 450 and below.

2. When a clearance is issued beyond the altitude and/or distance limitations of a NAVAID, in addition to being responsible for maintaining separation from other aircraft and airspace, the controller is responsible for providing aircraft with information and advice related to significant deviations from the expected flight path.

REFERENCE-
P/CG Term- Radar Monitoring.

b. Operational necessity requires and approval has been obtained from the Frequency Management and Flight Inspection Offices to exceed them.

c. Requested routing is via an MTR.

REFERENCE-
FAAO 7110.65, Methods, Para 5-6-2.

4-1-3. CROSSING ALTITUDE

Use an altitude consistent with the limitations of the aid when clearing an aircraft to cross or hold at a fix.

REFERENCE-
FAAO 7110.65, Methods, Para 5-6-2.

4-1-4. VFR-ON-TOP

Use a route not meeting service volume limitations only if an aircraft requests to operate "VFR-on-top" on this route.

NOTE-
Aircraft equipped with TACAN only are expected to:

a. Define route of flight between TACAN or VORTAC NAVAID's in the same manner as VOR-equipped aircraft.

b. Except in Class A airspace, submit requests for "VFR-on-top" flight where insufficient TACAN or VORTAC NAVAID's exist to define the route.

REFERENCE-
FAAO 7110.65, Methods, Para 5-6-2.

4-1-5. FIX USE

Request aircraft position reports only over fixes shown on charts used for the altitude being flown, except as follows:

NOTE-
Waypoints filed in random RNAV routes automatically become compulsory reporting points for the flight unless otherwise advised by ATC.

a. Unless the pilot requests otherwise, use only those fixes shown on high altitude en route charts, high altitude instrument approach procedures charts, and DP charts when clearing military turbojet single-piloted aircraft.

b. Except for military single-piloted turbojet aircraft, unpublished fixes may be used if the name of the NAVAID and, if appropriate, the radial/course/azimuth and frequency/channel are given to the pilot. An unpublished fix is defined as one approved and planned for publication which is not yet depicted on the charts or one which is used in accord with the following:

REFERENCE-
FAAO 7130.3, Holding Pattern Criteria.

1. Unpublished fixes are formed by the en route radial and either a DME distance from the same NAVAID or an intersecting radial from an off-route VOR/VORTAC/TACAN. DME shall be used in lieu of off-route radials, whenever possible.

2. Except where known signal coverage restrictions exist, an unpublished fix may be used for ATC purposes if its location does not exceed NAVAID altitude and distance limitation, and when off-route radials are used, the angle of divergence meets the criteria prescribed below.

NOTE-
Unpublished fixes should not negate the normal use of published intersections. Frequent routine use of an unpublished fix would justify establishing a fix.

REFERENCE-
FAAO 7110.65, Altitude and Distance Limitations, Para 4-1-1.

3. Do not hold aircraft at unpublished fixes below the lowest assignable altitude dictated by terrain clearance for the appropriate holding pattern airspace area (template) regardless of the MEA for the route being flown.

4. When the unpublished fix is located on an off-route radial and the radial providing course guidance, it shall be used consistent with the following divergence angles:

(a) When holding operations are involved with respect to subparas (b) and (c) below, the angle of divergence shall be at least 45 degrees.

(b) When both NAVAID's involved are located within 30 NM of the unpublished fix, the minimum divergence angle is 30 degrees.

(c) When the unpublished fix is located over 30 NM from the NAVAID generating the off-course radial, the minimum divergence angle shall increase 1 degree per NM up to 45 NM; e.g., 45 NM would require 45 degrees.

(d) When the unpublished fix is located beyond 45 NM from the NAVAID generating the off-course radial, the minimum divergence angle shall increase $^1/_2$ degree per NM; e.g., 130 NM would require 88 degrees.

c. Fixes contained in the route description of MTR's are considered filed fixes.

d. TACAN-only aircraft (type suffix M, N, or P) possess TACAN with DME, but no VOR or LF navigation system capability. Assign fixes based on TACAN or VORTAC facilities only.

NOTE-
TACAN-only aircraft can never be held overhead the NAVAID, be it TACAN or VORTAC.

e. DME fixes shall not be established within the no-course signal zone of the NAVAID from which inbound holding course information would be derived.

REFERENCE-
FAAO 7110.65, NAVAID Fixes, Para 2-5-3.
FAAO 7110.65, Methods, Para 5-6-2.

Section 2. Clearances

4-2-1. CLEARANCE ITEMS

Issue the following clearance items, as appropriate, in the order listed below:

a. Aircraft identification.

b. Clearance limit.

c. Instrument departure procedure (DP).

d. Route of flight including PDR/PDAR/PAR when applied.

e. Altitude data in the order flown.

f. Mach number, if applicable.

g. *USAF.* When issuing a clearance to an airborne aircraft containing an altitude assignment, do not include more than one of the following in the same transmission:

1. Frequency change.

2. Transponder change.

3. Heading.

4. Altimeter setting.

5. Traffic information containing an altitude.

h. Holding instructions.

i. Any special information.

j. Frequency and beacon code information.

REFERENCE-
FAAO 7110.65, IFR-VFR and VFR-IFR Flights, Para 4-2-8.
FAAO 7110.65, Altitude Information, Para 4-5-7.

4-2-2. CLEARANCE PREFIX

a. Prefix a clearance, information, or a request for information which will be relayed to an aircraft through a non-ATC facility by stating "A-T-C clears," "A-T-C advises," or "A-T-C requests."

b. Flight service stations shall prefix a clearance with the appropriate phrase: "ATC clears," "ATC advises," etc.

4-2-3. DELIVERY INSTRUCTIONS

Issue specific clearance delivery instructions, if appropriate.

4-2-4. CLEARANCE RELAY

Relay clearances verbatim.

REFERENCE-
FAAO 7110.65, Communications Failure, Para 10-4-4.

4-2-5. ROUTE OR ALTITUDE AMENDMENTS

a. Amend route of flight in a previously issued clearance by one of the following:

1. State which portion of the route is being amended and then state the amendment.

PHRASEOLOGY-
CHANGE (portion of route) TO READ (new portion of route).

2. State the amendment to the route and then state that the rest of the route is unchanged.

PHRASEOLOGY-
(Amendment to route), REST OF ROUTE UNCHANGED.

3. Issue a clearance "direct" to a point on the previously issued route.

PHRASEOLOGY-
CLEARED DIRECT (fix).

NOTE-
Clearances authorizing "direct" to a point on a previously issued route do not require the phrase "rest of route unchanged." However, it must be understood where the previously cleared route is resumed. When necessary, "rest of route unchanged" may be used to clarify routing.

4. Issue the entire route by stating the amendment.

EXAMPLE-
(Cessna 21A has been cleared to the Airville Airport via V41 Delta VOR V174 Alfa VOR, direct Airville Airport, maintain 9000. After takeoff, the aircraft is rerouted via V41 Frank intersection, V71 Delta VOR, V174 Alfa VOR. The controller issues one of the following as an amended clearance):

1. *"Cessna Two One Alfa change Victor Forty-One Delta to read Victor Forty-One Frank, Victor Seventy-One Delta."*

2. *"Cessna Two One Alfa cleared via Victor Forty-One Frank, Victor Seventy-One Delta, rest of route unchanged."*

3. *"Cessna Two One Alfa cleared via Victor Forty-One Frank, Victor Seventy-One Delta, Victor One Seventy-Four Alfa V-O-R, direct Airville airport, maintain Niner Thousand."*

b. When route or altitude in a previously issued clearance is amended, restate all applicable altitude restrictions.

EXAMPLE-
(A departing aircraft is cleared to cross Ollis intersection at or above 3,000; Gordonsville VOR at or above 12,000; maintain FL 200. Shortly after departure the altitude to be maintained is changed to FL 240. Because altitude restrictions remain in effect, the controller issues an amended clearance as follows):

"Amend altitude. Cross Ollis intersection at or above Three Thousand; cross Gordonsville V-O-R at or above One Two Thousand; maintain Flight Level Two Four Zero."

(Shortly after departure, altitude restrictions are no longer applicable, the controller issues an amended clearance as follows):

"Climb and maintain Flight Level Two Four Zero."

NOTE-
Restating previously issued altitude to "maintain" is an amended clearance. If altitude to "maintain" is changed or restated, whether prior to departure or while airborne, and previously issued altitude restrictions are omitted, altitude restrictions are canceled, including DP/FMSP/STAR altitude restrictions if any.

c. Issue an amended clearance if a speed restriction is declined because it cannot be complied with concurrently with a previously issued altitude restriction.

EXAMPLE-
(An aircraft is cleared to cross Gordonsville VOR at 11,000. Shortly thereafter he/she is cleared to reduce his/her airspeed to 300 knots. The pilot informs the controller he/she is unable to comply with both clearances simultaneously. The controller issues an amended clearance as follows):

"Cross Gordonsville VOR at One One Thousand. Then, reduce speed to Three Zero Zero."

NOTE-
The phrase "do the best you can" or comparable phrases are not valid substitutes for an amended clearance with altitude or speed restrictions.

REFERENCE-
FAAO 7110.65, Operational Requests, Para 2-1-18.
FAAO 7110.65, Section 6, Vectoring, Methods, Para 5-6-2.
FAAO 7110.65, Section 7, Speed Adjustment, Methods, Para 5-7-2.

d. Air traffic control specialists should avoid route and/or altitude changes for aircraft participating in the National Route Program (NRP) and that are displaying "NRP" in the remarks section of their flight plan.

NOTE-
Air traffic control specialists retain the latitude necessary to tactically resolve conflicts. Every effort should be made to ensure the aircraft is returned to the original filed flight plan/altitude as soon as conditions warrant.

REFERENCE-
FAAO 7110.65, Operational Priority, Para 2-1-4.
FAAO 7110.65, National Route Program (NRP) Information, Para 2-2-15.
FAAO 7110.65, En Route Data Entries, Para 2-3-2.
FAAO 7210.3, Chapter 17, Section 17, National Route Program.

4-2-6. THROUGH CLEARANCES

You may clear an aircraft through intermediate stops.

PHRASEOLOGY-
CLEARED THROUGH (airport) TO (fix).

4-2-7. ALTRV CLEARANCE

Use the phrase "via approved altitude reservation flight plan," if the aircraft will operate in an approved ALTRV.

PHRASEOLOGY-
VIA APPROVED ALTITUDE RESERVATION (mission name) FLIGHT PLAN.

NOTE-
An ALTRV normally includes the departure, climb, cruise, and arrival phases of flight up to and including holding pattern or point/time at which ATC provides separation between aircraft.

REFERENCE-
FAAO 7110.65, Abbreviated Departure Clearance, Para 4-3-3.

4-2-8. IFR-VFR AND VFR-IFR FLIGHTS

a. Clear an aircraft planning IFR operations for the initial part of flight and VFR for the latter part to the fix at which the IFR part ends.

b. Treat an aircraft planning VFR for the initial part of flight and IFR for the latter part as a VFR departure. Issue a clearance to this aircraft when it requests IFR clearance approaching the fix where it proposes to start IFR operations. The phraseology CLEARED TO (destination) AIRPORT AS FILED may be used with abbreviated departure clearance procedures.

REFERENCE-
FAAO 7110.65, Abbreviated Departure Clearance, Para 4-3-3.

c. When an aircraft changes from VFR to IFR, the controller shall assign a beacon code to Mode-C equipped aircraft that will allow MSAW alarms.

d. When a VFR aircraft, operating below the minimum altitude for IFR operations, requests an IFR clearance and you are aware that the pilot is unable to climb in VFR conditions to the minimum IFR altitude:

1. Before issuing a clearance, ask if the pilot is able to maintain terrain and obstruction clearance during a climb to the minimum IFR altitude.

NOTE-
Pilots of pop-up aircraft are responsible for terrain and obstacle clearance until reaching minimum instrument altitude (MIA) or minimum en route altitude (MEA). Pilot compliance with an approved FAA procedure or an ATC instruction transfers that responsibility to the FAA; therefore, do not assign (or imply) specific course guidance that will (or could) be in effect below the MIA or MEA.

EXAMPLE-
"November Eight Seven Six, are you able to provide your own terrain and obstruction clearance between your present altitude and six thousand feet?"

2. If the pilot is able to maintain terrain and obstruction separation, issue the appropriate clearance as prescribed in para 4-2-1, Clearance Items, and para 4-5-6, Minimum En Route Altitudes.

3. If unable to maintain terrain and obstruction separation, instruct the pilot to maintain VFR and to state intentions.

4. If appropriate, apply the provisions of para 10-2-7, VFR Aircraft In Weather Difficulty, or para 10-2-9, Radar Assistance Techniques, as necessary.

4-2-9. CLEARANCE ITEMS

The following guidelines shall be utilized to facilitate the processing of airfile aircraft:

a. Ensure the aircraft is within your area of jurisdiction unless otherwise coordinated.

b. Obtain necessary information needed to provide IFR service.

c. Issue clearance to destination, short range clearance, or an instruction to the pilot to contact a FSS or AFSS if the flight plan cannot be processed.

NOTE-
These procedures do not imply that the processing of airfiles has priority over another ATC duty to be performed.

REFERENCE-
FAAO 7110.65, Recording Information, Para 2-2-1.

Section 3. Departure Procedures

4-3-1. DEPARTURE TERMINOLOGY

Avoid using the term "takeoff" except to actually clear an aircraft for takeoff or to cancel a takeoff clearance. Use such terms as "depart," "departure," or "fly" in clearances when necessary.

REFERENCE-
FAAO 7110.65, Takeoff Clearance, Para 3-9-9.
FAAO 7110.65, Cancellation of Takeoff Clearance, Para 3-9-10.

4-3-2. DEPARTURE CLEARANCES

Include the following items in IFR departure clearances:

NOTE-
When considered necessary, controllers or pilots may initiate read backs of a clearance. Some pilots may be required by company rule to do so.

a. Always include the airport of departure when issuing a departure clearance for relay to an aircraft by an FSS, dispatcher, etc.

b. Clearance Limit. Specify the destination airport when practicable, even though it is outside controlled airspace. Issue short range clearances as provided for in any procedures established for their use.

c. Departure Procedures.

1. Specify direction of takeoff/turn or initial heading/azimuth to be flown after takeoff as follows:

(a) Locations with Airport Traffic Control Service- Specify these items as necessary.

(b) Locations without Airport Traffic Control Service, but within a Class E surface area- specify these items if necessary. Obtain/solicit the pilot's concurrence concerning these items before issuing them in a clearance.

NOTE-
Direction of takeoff and turn after takeoff can be obtained/solicited directly from the pilot, or relayed by an FSS, dispatcher, etc., as obtained/solicited from the pilot.

(c) At all other airports- Do not specify direction of takeoff/turn after takeoff. If necessary to specify an initial heading/azimuth to be flown after takeoff, issue the initial heading/azimuth so as to apply only within controlled airspace.

2. Where only textually described instrument departure procedures have been published for a location and pilot compliance is necessary to insure separation, include the procedure as part of the ATC clearance.

EXAMPLE-
"Depart via the (airport name) (runway number) departure procedure."

NOTE-
IFR takeoff minimums and departure procedures are prescribed for specific airports/runways and published in a tabular form supplement to the NOS instrument approach procedure chart and appropriate FAA Form 8260. These procedures are identified on instrument approach procedure charts with a symbol:

3. Compatibility with a procedure issued may be verified by asking the pilot if items obtained/solicited will allow him/her to comply with local traffic pattern, terrain, or obstruction avoidance.

PHRASEOLOGY-
FLY RUNWAY HEADING.

DEPART (direction or runway).

TURN LEFT/RIGHT.

WHEN ENTERING CONTROLLED AIRSPACE (instruction), FLY HEADING (degrees) UNTIL REACHING (altitude, point, or fix) BEFORE PROCEEDING ON COURSE.

FLY A (degree) BEARING/AZIMUTH FROM/TO (fix) UNTIL (time),

or

UNTIL REACHING (fix or altitude),

and if required,

BEFORE PROCEEDING ON COURSE.

EXAMPLE-
"Verify right turn after departure will allow compliance with local traffic pattern," or "Verify this clearance will allow compliance with terrain or obstruction avoidance."

NOTE-
If a published IFR departure procedure is not included in an ATC clearance, compliance with such a procedure is the pilot's prerogative.

4. DP's:

(a) Assign a DP (including transition if necessary). Assign a PDR or the route filed by the pilot, only when a DP is not established for the departure route to be flown, or the pilot has indicated that he/she does not wish to use a DP.

PHRASEOLOGY-
(DP name and number) DEPARTURE.

(DP name and number) DEPARTURE,
(transition name) TRANSITION.

EXAMPLE-
"Stroudsburg One Departure."
"Stroudsburg One Departure, Sparta Transition."
"Stroudsburg One RNAV Departure."

NOTE-
If a pilot does not wish to use a DP issued in an ATC clearance, or any other DP published for that location, he/she is expected to advise ATC.

(b) If it is necessary to assign a crossing altitude which differs from the DP altitude, repeat the changed altitude to the pilot for emphasis.

PHRASEOLOGY-
(DP name) DEPARTURE, EXCEPT (revised altitude information). I SAY AGAIN (revised altitude information).

EXAMPLE-
"Stroudsburg One Departure, except cross Quaker at five thousand. I say again, cross Quaker at five thousand."

"Astoria Two RNAV Departure, except cross Astor waypoint at six thousand. I say again, cross Astor waypoint at six thousand."

(c) Specify altitudes when they are not included in the DP.

PHRASEOLOGY-
(DP name) DEPARTURE. CROSS (fix) AT (altitude).

EXAMPLE-
"Stroudsburg One Departure. Cross Jersey intersection at four thousand. Cross Range intersection at six thousand."

"Engle Two RNAV departure. Cross Pilim waypoint at or above five thousand. Cross Engle waypoint at or above seven thousand. Cross Gorge waypoint at niner thousand."

d. Route of flight. Specify one or more of the following:

1. Airway, route, course, heading, azimuth, arc, or vector.

2. The routing a pilot can expect if any part of the route beyond a short range clearance limit differs from that filed.

PHRASEOLOGY-
EXPECT FURTHER CLEARANCE VIA (airways, routes, or fixes.)

e. Altitude. Use one of the following in the order of preference listed:

NOTE-
Turbojet aircraft equipped with afterburner engines may occasionally be expected to use afterburning during their climb to the en route altitude. When so advised by the pilot, the controller may be able to plan his/her traffic to accommodate the high performance climb and allow the pilot to climb to his/her planned altitude without restriction.

1. Assign the altitude requested by the pilot.

2. Assign an altitude, as near as possible to the altitude requested by the pilot, and

(a) Inform the pilot when to expect clearance to the requested altitude unless instructions are contained in the specified DP, or

(b) If the requested altitude is not expected to be available, inform the pilot what altitude can be expected and when/where to expect it.

NOTE-
1. 14 CFR Section 91.185, says that in the event of a two-way radio communication failure, in VFR conditions or if VFR conditions are encountered after the failure, the pilot shall continue the flight under VFR and land as soon as practicable. That section also says that when the failure occurs in IFR conditions the pilot shall continue flight at the highest of the following altitudes or flight levels for the route segment being flown:
a. The altitude or flight level assigned in the last ATC clearance received.
b. The minimum altitude (converted, if appropriate, to minimum flight level as prescribed in 14 CFR Section 91.121(c)) for IFR operations. (This altitude should be consistent with MEA's, MOCA's, etc..)
c. The altitude or flight level ATC has advised may be expected in a further clearance.
2. If the expected altitude is the highest of the preceding choices, the pilot should begin to climb to that expected altitude at the time or fix specified in the clearance. The choice to climb to the expected altitude is not applicable if the pilot has proceeded beyond the specified fix or if the time designated in the clearance has expired.

PHRASEOLOGY-
CLIMB AND MAINTAIN (the altitude as near as possible to the pilot's requested altitude). EXPECT (the requested altitude or an altitude different from the requested altitude) AT (time or fix),

and if applicable,

(pilot's requested altitude) IS NOT AVAILABLE.

EXAMPLE-
1. *A pilot has requested flight level 350. Flight level 230 is immediately available and flight level 350 will be available at the Appleton zero five zero radial 35 mile fix. The clearance will read:*
"Climb and maintain flight level two three zero. Expect flight level three five zero at Appleton zero five zero radial three five mile fix."

2. *A pilot has requested 9,000 feet. An altitude restriction is required because of facility procedures or requirements. Assign the altitude and advise the pilot at what fix/time the pilot may expect the requested altitude. The clearance could read:*
"Climb and maintain five thousand. Expect niner thousand one zero minutes after departure."

3. *A pilot has requested 17,000 feet which is unavailable. You plan 15,000 feet to be the pilot's highest altitude prior to descent to the pilot's destination but only 13,000 feet is available until San Jose VOR. Advise the pilot of the expected altitude change and at what fix/time to expect clearance to 15,000 feet. The clearance will read:*
"Climb and maintain one three thousand. Expect one five thousand at San Jose. One seven thousand is not available."

REFERENCE-
FAAO 7110.65, Abbreviated Departure Clearance, Para 4-3-3.
FAAO 7110.65, Initial Heading, Para 5-8-2.

4-3-3. ABBREVIATED DEPARTURE CLEARANCE

a. Issue an abbreviated departure clearance if its use reduces verbiage and the following conditions are met:

REFERENCE-
FAAO 7110.65, IFR-VFR and VFR-IFR Flights, Para 4-2-8.

1. The route of flight filed with ATC has not been changed by the pilot, company, operations officer, input operator, or in the stored flight plan program prior to departure.

NOTE-
A pilot will not accept an abbreviated clearance if the route of flight filed with ATC has been changed by him/her or the company or the operations officer before departure. He/she is expected to inform the control facility on initial radio contact if he/she cannot accept the clearance. It is the responsibility of the company or operations officer to inform the pilot when they make a change.

2. All ATC facilities concerned have sufficient route of flight information to exercise their control responsibilities.

NOTE-
The route of flight information to be provided may be covered in letters of agreement.

3. When the flight will depart IFR, destination airport information is relayed between the facilities concerned prior to departure.

EXAMPLE-
1. *A tower or flight service station relay of destination airport information to the center when requesting clearance:*
"Request clearance for United Four Sixty-One to O'Hare."

2. *A center relay to the tower or flight service station when initiating a clearance:*
"Clearance for United Four Sixty-One to O'Hare."

NOTE-
Pilots are expected to furnish the facility concerned with destination airport information on initial radio call-up. This will provide the information necessary for detecting any destination airport differences on facility relay.

4. The assigned altitude, according to the provisions in para 4-3-2, Departure Clearances, subpara e, is stated in the clearance.

b. If it is necessary to modify a filed route of flight in order to achieve computer acceptance due, for example, to incorrect fix or airway identification, the contraction "FRC," meaning "Full Route Clearance Necessary," or "FRC/(fix)," will be added to the remarks. "FRC" or "FRC/(fix)" must always be the first item of intra-center remarks. When "FRC" or "FRC/(fix)" appears on a flight progress strip, the controller issuing the ATC clearance to the aircraft shall issue a full route clearance to the specified fix, or, if no fix is specified, for the entire route.

EXAMPLE-
"Cleared to Missoula InternationaL Airport, Chief Two Departure to Angley; direct Salina; then as filed; maintain one seven thousand."

NOTE-
Changes, such as those made to conform with traffic flows and preferred routings, are only permitted to be made by the pilot (or his/her operations office) or the controller responsible for initiating the clearance to the aircraft.

c. Specify the destination airport in the clearance.

d. When no changes are required in the filed route, state the phrase: "Cleared to (destination) airport, (DP and DP transition, as appropriate); then, as filed." If a DP is not assigned, follow with "As filed." Specify the assigned altitude; and, if required, add any additional instructions or information.

PHRASEOLOGY-
CLEARED TO (destination) AIRPORT;

and as appropriate,

(DP name and number) DEPARTURE,
AS FILED.

MAINTAIN (altitude); (additional instructions or information).

If a DP is not assigned,

CLEARED TO (destination) AIRPORT AS FILED.
MAINTAIN (altitude);

and if required,

(additional instructions or information).

EXAMPLE-
"Cleared to Reynolds Airport; David Two RNAV Departure, Kingham Transition; then, as filed. Maintain niner thousand. Expect flight level four one zero, one zero minutes after departure."

"Cleared to Reynolds Airport as filed. Maintain niner thousand. Expect flight level four one zero, one zero minutes after departure."

NOTE-
1. *DP's are excluded from "cleared as filed" procedures.*

2. *If a pilot does not wish to accept an ATC clearance to fly a DP, he/she is expected to advise ATC or state "NO DP" in his/her flight plan remarks.*

e. When a filed route will require revisions, the controller responsible for initiating the clearance to the aircraft shall either:

1. Issue a FRC/FRC until a fix; or

2. If it reduces verbiage, state the phrase: "Cleared to (destination) airport, (DP and DP transition, as appropriate), then as filed, except . . .." Specify the necessary revision, then the assigned altitude; and if required, add any additional instructions or information. If a DP is not assigned, state: "Cleared to (destination) airport as filed, except . . .." Specify the necessary revision, the assigned altitude; and if required, add any additional instructions or information.

PHRASEOLOGY-
CLEARED TO (destination) AIRPORT;

and as appropriate,

(DP name and number) DEPARTURE,

(transition name) TRANSITION; THEN,

AS FILED, EXCEPT CHANGE ROUTE TO READ (amended route portion).

MAINTAIN (altitude);

and if required,

(additional instructions or information).

If a DP is not assigned,

CLEARED TO (destination) AIRPORT AS FILED,

EXCEPT CHANGE ROUTE TO READ (amended route portion).

MAINTAIN (altitude);

and if required,

(additional instructions or information).

EXAMPLE-
"Cleared to Reynolds Airport; South Boston One Departure; then, as filed, except change route to read South Boston Victor Twenty Greensboro. Maintain eight thousand, report leaving four thousand."

"Cleared to Reynolds Airport as filed, except change route to read South Boston Victor Twenty Greensboro. Maintain eight thousand, report leaving four thousand."

"Cleared to Reynolds Airport via Victor Ninety-one Albany, then as filed. Maintain six thousand."

f. In a nonradar environment specify one, two, or more fixes, as necessary, to identify the initial route of flight.

EXAMPLE-
The filed route of flight is from Hutchins V10 Emporia, thence V10N and V77 to St. Joseph. The clearance will read: "Cleared to Watson Airport as filed via Emporia, maintain Seven Thousand."

g. Do not apply these procedures when a pilot requests a detailed clearance or to military operations conducted within ALTRV, stereo routes, operations above FL 600, and other military operations requiring special handling.

NOTE-
Departure clearance procedures and phraseology for military operations within approved altitude reservations, military operations above FL 600, and other military operations requiring special handling are contained in separate procedures in this order or in a LOA, as appropriate.

REFERENCE-
FAAO 7110.65, ALTRV Clearance, Para 4-2-7.
FAAO 7110.65, Military Operations Above FL 600, Para 9-3-11.

4-3-4. DEPARTURE RESTRICTIONS, CLEARANCE VOID TIMES, HOLD FOR RELEASE, AND RELEASE TIMES

Assign departure restrictions, clearance void times, hold for release, or release times when necessary to separate departures from other traffic or to restrict or regulate the departure flow.

REFERENCE-
FAAO 7110.65, Overdue Aircraft, Para 10-3-1.
FAAO 7110.65, Traffic Restrictions, Para 10-4-1.
FAAO 7110.65, Traffic Resumption, Para 10-4-3.

a. Clearance Void Times.

1. When issuing clearance void times at airports not served by control towers, provide alternative instructions requiring the pilots to advise ATC of their intentions no later than 30 minutes after the clearance void time if not airborne.

2. The facility delivering a clearance void time to a pilot shall issue a time check.

PHRASEOLOGY-
CLEARANCE VOID IF NOT OFF BY (clearance void time),

and if required,

IF NOT OFF BY (clearance void time), ADVISE (facility) NOT LATER THAN (time) OF INTENTIONS.

TIME (time in hours, minutes, and the nearest quarter minute).

b. Hold For Release (HFR).

1. "Hold for release" instructions shall be used when necessary to inform a pilot or a controller that a departure clearance is not valid until additional instructions are received.

REFERENCE-
P/CG Term- Hold for Release.

2. When issuing hold for release instructions, include departure delay information.

PHRASEOLOGY-
(Aircraft identification) CLEARED TO (destination) AIRPORT AS FILED, MAINTAIN (altitude),

and if required,

(additional instructions or information).

HOLD FOR RELEASE, EXPECT (time in hours and/or minutes) DEPARTURE DELAY.

3. When conditions allow, release the aircraft as soon as possible.

PHRASEOLOGY-
To another controller,

(aircraft identification) RELEASED.

To a flight service specialist,

ADVISE (aircraft identification) RELEASED FOR DEPARTURE.

To a pilot at an airport not served by a control tower,

(aircraft identification) RELEASED FOR DEPARTURE.

c. Release Times.

1. Release times shall be issued to pilots when necessary to specify the earliest time an aircraft may depart.

NOTE-
A release time is a departure restriction issued to a pilot (either directly or through authorized relay) to separate a departing aircraft from other traffic.

2. The facility issuing a release time to a pilot shall include a time check.

PHRASEOLOGY-
(Aircraft identification) RELEASED FOR DEPARTURE AT (time in hours and/or minutes),

and if required,

IF NOT OFF BY (time), ADVISE (facility) NOT LATER THAN (time) OF INTENTIONS.

TIME (time in hours, minutes, and nearest quarter minute).

d. When controlled departure time (CDT) procedures are in effect, the departure terminal shall, to the extent possible, plan ground movement of aircraft destined to the affected airport(s) so that flights are sequenced to depart as near as possible to the assigned EDCT, but no earlier than 5 minutes prior to the EDCT or 15 minutes after the assigned EDCT. If the aircraft is unable to meet these parameters, contact the overlying TMU for a revised EDCT.

NOTE-
(Trust & Verify) EDCT times are revised for changing conditions en route or at affected airport(s). Terminal controllers use of aircraft reported EDCT for departure sequencing should be verified with the ATCSCC or overlying TMU prior to or after aircraft departure.

4-3-5. DELAY SEQUENCING

When aircraft elect to take delay on the ground before departure, issue departure clearances to them in the order in which the requests for clearance were originally made if practicable.

4-3-6. FORWARD DEPARTURE DELAY INFORMATION

Inform approach control facilities and/or towers of anticipated departure delays.

4-3-7. COORDINATION WITH RECEIVING FACILITY

a. Coordinate with the receiving facility before the departure of an aircraft if the departure point is less than 15 minutes flying time from the transferring facility's boundary unless an automatic transfer of data between automated systems will occur, in which case, the flying time requirement may be reduced to 5 minutes or replaced with a mileage from the boundary parameter when mutually agreeable to both facilities.

NOTE-
Agreements requiring additional time are encouraged between facilities that need earlier coordination. However, when agreements establish mandatory radar handoff procedures, coordination needs only be effected in a timely manner prior to transfer of control.

REFERENCE-
FAAO 7110.65, Chapter 5, Section 4, Transfer of Radar Identification, Application, Para 5-4-1.

b. The actual departure time or a subsequent strip posting time shall be forwarded to the receiving facility unless assumed departure times are agreed upon and that time is within 3 minutes of the actual departure time.

4-3-8. VFR RELEASE OF IFR DEPARTURE

When an aircraft which has filed an IFR flight plan requests a VFR departure through a terminal facility, FSS, or air/ground communications station:

a. After obtaining, if necessary, approval from the facility/sector responsible for issuing the IFR clearance, you may authorize an IFR flight planned aircraft to depart VFR. Inform the pilot of the proper frequency and, if appropriate, where or when to contact the facility responsible for issuing the clearance.

PHRASEOLOGY-
VFR DEPARTURE AUTHORIZED. CONTACT (facility) ON (frequency) AT (location or time if required) FOR CLEARANCE.

b. If the facility/sector responsible for issuing the clearance is unable to issue a clearance, inform the pilot, and suggest that the delay be taken on the ground. If the pilot insists upon taking off VFR and obtaining an IFR clearance in the air, inform the facility/sector holding the flight plan of the pilot's intentions and, if possible, the VFR departure time.

4-3-9. FORWARDING DEPARTURE TIMES

TERMINAL

Unless alternate procedures are prescribed in a letter of agreement or automatic departure messages are being transmitted between automated facilities, forward departure times to the facility from which you received the clearance and also to the terminal departure controller when that position is involved in the departure sequence.

NOTE-
1. *Letters of agreement prescribing assumed departure times or mandatory radar handoff procedures are alternatives for providing equivalent procedures.*

2. *The letters "DM" flashing in the data block signify unsuccessful transmission of a departure message.*

REFERENCE-
FAAO 7210.3, Automatic Acquisition/Termination Areas, Para 11-2-6.

Section 4. Route Assignment

4-4-1. ROUTE USE

Clear aircraft via routes consistent with the altitude stratum in which the operation is to be conducted by one or more of the following:

NOTE-
Except for certain NAVAID's/routes used by scheduled air carriers or authorized for specific uses in the control of IFR aircraft, airways, routes, and NAVAID's established for use at specified altitudes are shown on U.S. government charts or DOD FLIP charts.

REFERENCE-
FAAO 7110.65, NAVAID Terms, Para 2-5-2.
FAAO 7110.65, Exceptions, Para 4-1-2.
FAAO 7110.65, Minimum En Route Altitudes, Para 4-5-6.
FAAO 7110.65, Application, Para 5-6-1.

a. Designated airways and routes.

PHRASEOLOGY-
VIA:

VICTOR (color) (airway number)(the word Romeo when RNAV),

or

J (route number) (the word Romeo when RNAV),

or

SUBSTITUTE (airway or jet route) FROM (fix) to (fix),

or

IR (route number).

CROSS/JOIN VICTOR/(color) (airway number), (number of miles) MILES (direction) OF (fix).

b. Radials, courses, azimuths, or direct to or from NAVAID's.

PHRASEOLOGY-
DIRECT.

VIA;

(name of NAVAID) (specified) RADIAL/COURSE/ AZIMUTH,

or

(fix) AND (fix),

or

RADIALS OF (airway or route) AND (airway or route).

c. DME arcs of VORTAC, MLS, or TACAN aids.

d. Radials, courses, azimuths, and headings of departure or arrival routes.

e. DP's/STAR's/FMSP's.

f. Vectors.

g. Fixes defined in terms of degree-distance from NAVAID's for special military operations.

h. Courses, azimuths, bearings, quadrants, or radials within a radius of a NAVAID.

PHRASEOLOGY-
CLEARED TO FLY (general direction from NAVAID) OF (NAVAID name and type) BETWEEN (specified) COURSES TO/BEARINGS FROM/RADIALS (NAVAID name when a NDB) WITHIN (number of miles) MILE RADIUS,

or

CLEARED TO FLY (specified) QUADRANT OF (NAVAID name and type) WITHIN (number of miles) MILE RADIUS.

or

CLEARED TO FLY (general direction from MLS) OF (name or MLS) BETWEEN (specified) AZIMUTHS WITHIN/BETWEEN (number of miles) MILE RADIUS.

EXAMPLE-
1. *"Cleared to fly east of Allentown VORTAC between the zero four five and the one three five radials within four zero mile radius."*

2. *"Cleared to fly east of Crystal Lake radio beacon between the two two five and the three one five courses to Crystal Lake within three zero mile radius."*

3. *"Cleared to fly northeast quadrant of Philipsburg VORTAC within four zero mile radius."*
"Cleared to fly east of the Montgomery M-L-S runway two eight left between the two seven zero and the two four zero azimuth within a 5 mile radius."

i. Fixes/waypoints defined in terms of:

1. Published name

or

2. Degree-distance from NAVAID's

or

3. Latitude/longitude coordinates

or

4. Offset from published or established routes/airways at a specified distance and direction for random (impromptu) RNAV Routes.

PHRASEOLOGY-
DIRECT (fix/waypoint)

DIRECT TO THE (facility) (radial) (distance) FIX.

OFFSET(distance) RIGHT/LEFT OF (route).

EXAMPLE-
"Direct SUNOL."
"Direct to the Appleton three one zero radial two five mile fix."
"Offset eight miles right of Victor six."

REFERENCE-
FAAO 7110.65, Aircraft Equipment Suffix, Para 2-3-7.
FAAO 7110.65, NAVAID Fixes, Para 2-5-3.
FAAO 7110.65, Chapter 5, Section 5, Radar Separation, Application, Para 5-5-1.

4-4-2. ROUTE STRUCTURE TRANSITIONS

To effect transition within or between route structure, clear an aircraft by one or more of the following methods, based on VOR, VORTAC, TACAN, or MLS NAVAID's (unless use of other NAVAID's are essential to aircraft operation or ATC efficiency):

a. Vector aircraft to or from radials, courses, or azimuths of the airway or route assigned.

b. Assign a DP/STAR/FMSP.

c. Clear departing or arriving aircraft to climb or descend via radials, courses, or azimuths of the airway or jet route assigned.

d. Clear departing or arriving aircraft directly to or between the NAVAID's forming the airway or route assigned.

e. Clear aircraft to climb or descend via the airway or route on which flight will be conducted.

f. Clear aircraft to climb or descend on specified radials, courses, or azimuths of NAVAID's.

g. Provide radar monitor when transition to or from a designated or established RNAV route is made along random RNAV routes.

h. Clear RNAV aircraft transitioning to or between designated or established RNAV routes direct to a named waypoint on the new route.

4-4-3. DEGREE-DISTANCE ROUTE DEFINITION FOR MILITARY OPERATIONS

EN ROUTE

a. Do not accept a military flight plan whose route or route segments do not coincide with designated airways or jet routes or with a direct course between NAVAID's unless it is authorized in subpara b and meets the following degree-distance route definition and procedural requirements:

1. The route or route segments shall be defined in the flight plan by degree-distance fixes composed of:

(a) A location identifier;

(b) Azimuth in degrees magnetic; and

(c) Distance in miles from the NAVAID used.

EXAMPLE-
"MKE 030025."

2. The NAVAID's selected to define the degree-distance fixes shall be those authorized for use at the altitude being flown and at a distance within the published service volume area.

3. The distance between the fixes used to define the route shall not exceed:

(a) Below FL 180- 80 miles;

(b) FL 180 and above- 260 miles; and

(c) For celestial navigation routes, all altitudes- 260 miles.

4. Degree-distance fixes used to define a route shall be considered compulsory reporting points except that an aircraft may be authorized by ATC to omit reports when traffic conditions permit.

5. Military aircraft using degree-distance route definition procedures shall conduct operations in accordance with the following:

(a) Unless prior coordination has been effected with the appropriate air traffic control facility, flight plan the departure and the arrival phases to conform with the routine flow of traffic when operating within 75 miles of the departure and the arrival airport. Use defined routes or airways or direct courses between NAVAID's or as otherwise required to conform to the normal flow of traffic.

(b) Flight plans must be filed at least 2 hours before the estimated time of departure.

b. The following special military operations are authorized to define routes, or portions of routes, by degree-distance fixes:

1. Airborne radar navigation, radar bomb scoring (RBS), and airborne missile programming conducted by the USAF, USN, and RAF.

2. Celestial navigation conducted by the USAF, USN, and RAF.

3. Target aircraft operating in conjunction with air defense interceptors, and air defense interceptors while en route to and from assigned airspace.

4. Missions conducted above FL 450.

5. USN fighter and attack aircraft operating in positive control airspace.

6. USN/USMC aircraft, TACAN equipped, operating within the Honolulu FIR/Hawaiian airways area.

7. USAF/USN/USMC aircraft flight planned to operate on MTR's.

8. USAF Air Mobility Command (AMC) aircraft operating on approved station-keeping equipment (SKE) routes in accordance with the conditions and limitations listed in FAA Exemption No. 4371 to 14 CFR Section 91.177(a)(2) and 14 CFR Section 91.179(b)(1).

4-4-4. ALTERNATIVE ROUTES

When any part of an airway or route is unusable because of NAVAID status, clear aircraft other than /E, /F, or /G, via one of the following alternative routes:

a. A route depicted on current U.S. Government charts/publications. Use the word "substitute" immediately preceding the alternative route in issuing the clearance.

b. A route defined by specifying NAVAID radials, courses, or azimuths.

c. A route defined as direct to or between NAVAID's.

d. Vectors.

NOTE-
Inform area navigation aircraft that will proceed to the NAVAID location of the NAVAID outage.

4-4-5. CLASS G AIRSPACE

Include routes through Class G airspace only when requested by the pilot.

NOTE-
1. *Flight plans filed for random RNAV routes through Class G airspace are considered a request by the pilot.*

2. *Flight plans containing MTR segments in/through Class G airspace are considered a request by the pilot.*

Section 5. Altitude Assignment and Verification

4-5-1. VERTICAL SEPARATION MINIMA

Separate instrument flight rules (IFR) aircraft using the following minima between altitudes:

a. Up to and including FL 290- 1,000 feet.

b. Above FL 290- 2,000 feet, except:

1. In oceanic airspace, above FL 450 between a supersonic and any other aircraft- 4,000 feet.

2. Above FL 600 between military aircraft- 5,000 feet.

3. Apply 1,000 feet between approved aircraft if:

(a) Operating within airspace and altitude(s) designated for reduced vertical separation minimum (RVSM) or,

(b) Operating within RVSM transition airspace and designated altitude(s) if:

(1) En route to/from RVSM designated airspace; or,

(2) Within the Anchorage FIR.

NOTE-
1. *Oceanic separation procedures are supplemented in Chapter 8; Section 7, Section 8, Section 9, and Section 10.*

2. *RVSM and RVSM transition airspace is designated in ICAO Regional Supplementary Document, Doc. 7030.4, and via International NOTAM.*

REFERENCE-
FAAO 7110.65, Vertical Application, Para 5-5-5.
FAAO 7110.65, Application, Para 6-6-1.
FAAO 7110.65, Military Operations Above FL 600, Para 9-3-11.

4-5-2. FLIGHT DIRECTION

Clear aircraft at altitudes according to the TBL 4-5-1.

Altitude Assignment

Aircraft Operating	*On course degrees magnetic*	*Assign*	*Examples*
Below 3,000 feet above surface	Any course	Any altitude	
Below FL 290	0 through 179	Odd cardinal altitude or flight levels at intervals of 2,000 feet	3,000 5,000, FL 250, FL 270
	180 through 359	Even cardinal altitude or flight levels at intervals of 2,000 feet	4,000, 6000, FL 240, FL 260
At or above FL 290	0 through 179	Odd cardinal flight levels at intervals of 4,000 feet beginning with FL 290	FL 290, FL 330, FL 370
	180 through 359	Odd cardinal flight levels at intervals of 4,000 feet beginning with FL 310	FL 310, FL 350, FL 390
One way routes (except in composite systems)	Any course	Any cardinal altitude or flight level below FL 290 or any odd cardinal flight level at or above FL 290	FL 270, FL 280, FL 310, FL 330
Within an ALTRV	Any course	Any altitude or flight level	
In transition to/ from or within Oceanic airspace where composite separation is authorized	Any course	Any odd or even cardinal flight level including those above FL 290	FL 280, FL 290, FL 300, FL 310, FL 320, FL 330, FL 340
In aerial refueling tracks and anchors	Any course	Altitude blocks as requested. Any altitude or flight level	050B080, FL 1 80B220, FL 280B310
Aircraft within RVSM or RVSM transition airspace	Any course	Any designated cardinal altitude	FL 330, FL 340, FL 350, FL 360

TBL 4-5-1

NOTE-
Oceanic separation procedures are supplemented in Chapter 8; Section 7, Section 8, Section 9, and Section 10.

REFERENCE-
FAAO 7110.65, Exceptions, Para 4-5-3.
FAAO 7110.65, Altitude Assignments, Para 7-7-5.
FAAO 7110.65, Separation Minima, Para 9-4-2.

4-5-3. EXCEPTIONS

When traffic, meteorological conditions, or aircraft operational limitations prevent assignment of altitudes prescribed in para 4-5-2, Flight Direction, assign any cardinal altitude or flight level below FL 290 or any odd cardinal flight level at or above FL 290 without regard to direction of flight as follows:

NOTE-
See para 2-3-9, Control Symbology, for control abbreviations and symbols to be used in conjunction with this paragraph.

a. For traffic conditions, take this action only if one of the following conditions exists:

1. Aircraft remain within a facility's area and prior approval is obtained from other affected positions or sectors or the operations are covered in a Facility Directive.

2. Aircraft will proceed beyond the facility's area and specific operations and procedures permitting random altitude assignment are covered in a letter of agreement between the appropriate facilities.

NOTE-
Those en route facilities using host software that provides capability for passing interim altitude shall include the specific operations and procedures for use of this procedure in a letter of agreement between the appropriate facilities.

b. Military aircraft are operating on random routes and prior approval is obtained from the facility concerned.

c. For meteorological conditions, take this action only if you obtain prior approval from other affected positions or sectors within your facility and, if necessary, from the adjacent facility concerned.

d. For aircraft operational limitations, take this action only if the pilot informs you the available appropriate altitude exceeds the operational limitations of his/her aircraft and only after you obtain prior approval from other affected positions or sectors within your facility and, if necessary, from the adjacent facility concerned.

e. For mission requirements, take this action only when the aircraft is operating on an MTR.

REFERENCE-
FAAO 7110.65, Altitude Assignments, Para 7-7-5.
FAAO 7110.65, Separation Minima, Para 9-4-2.

f. For facilities utilizing URET CCLD, take this action without coordination when URET CCLD functionalities determine that coordination is not required.

4-5-4. LOWEST USABLE FLIGHT LEVEL

If a change in atmospheric pressure affects a usable flight level in your area of jurisdiction, use TBL 4-5-2 to determine the lowest usable flight level to clear aircraft at or above 18,000 feet MSL.

Lowest Usable FL

Altimeter Setting	*Lowest Usable FL*
29.92" or higher	180
29.91" to 28.92"	190
28.91" to 27.92"	200

TBL 4-5-2

REFERENCE-
FAAO 7110.65, Separation Minima, Para 9-4-2.

4-5-5. ADJUSTED MINIMUM FLIGHT LEVEL

When the prescribed minimum altitude for IFR operations is at or above 18,000 feet MSL and the atmospheric pressure is less than 29.92", add the appropriate adjustment factor from TBL 4-5-3 to the flight level equivalent of the minimum altitude in feet to determine the adjusted minimum flight level.

Minimum FL Adjustment

Altimeter Setting	*Adjustment Factor*
29.92" or higher	None
29.91" to 29.42"	500 feet
29.41" to 28.92"	1,000 feet
28.91" to 28.42"	1,500 feet
28.41" to 27.92"	2,000 feet

TBL 4-5-3

4-5-6. MINIMUM EN ROUTE ALTITUDES

Except as provided in subparas a and b below, assign altitudes at or above the MEA for the route segment being flown. When a lower MEA for subsequent segments of the route is applicable, issue the lower MEA only after the aircraft is over or past the Fix/NAVAID beyond which the lower MEA applies unless a crossing restriction at or above the higher MEA is issued.

a. An aircraft may be cleared below the MEA but not below the MOCA for the route segment being flown if the altitude assigned is at least 300 feet above the floor of controlled airspace and one of the following conditions are met:

NOTE-
Controllers must be aware that in the event of radio communications failure, a pilot will climb to the MEA for the route segment being flown.

1. Nonradar procedures are used only within 22 miles of a VOR, VORTAC, or TACAN.

2. Radar procedures are used only when an operational advantage is realized and the following actions are taken:

(a) Radar navigational guidance is provided until the aircraft is within 22 miles of the NAVAID, and

(b) Lost communications instructions are issued.

b. An aircraft may be cleared to operate on jet routes below the MEA (but not below the prescribed minimum altitude for IFR operations) or above the maximum authorized altitude if, in either case, radar service is provided.

NOTE-
Minimum en route and maximum authorized altitudes for certain jet route segments have been established above the floor of the jet route structure due to limitations on navigational signal coverage.

c. Where a higher altitude is required because of an MEA, the aircraft shall be cleared to begin climb to the higher MEA as follows:

1. If no MCA is specified, prior to or immediately after passing the fix where the higher MEA is designated. (See FIG 4-5-1.)

No MCA Specified

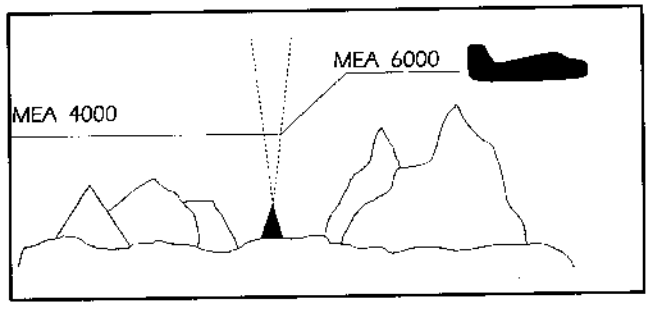

FIG 4-5-1

2. If a MCA is specified, prior to the fix so as to cross the fix at or above the MCA. (See FIG 4-5-2.)

MCA Specified

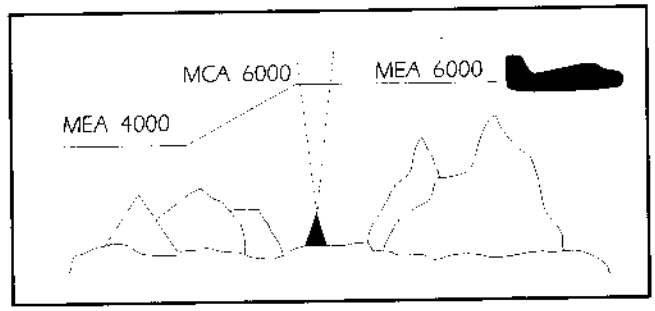

FIG 4-5-2

d. Where MEA's have not been established, clear an aircraft at or above the minimum altitude for IFR operations prescribed by 14 CFR Section 91.177.

REFERENCE-
FAAO 7110.65, IFR-VFR and VFR-IFR Flights, Para 4-2-8.
FAAO 7110.65, Route Use, Para 4-4-1.
FAAO 7110.65, Chapter 5, Section 6, Application, Para 5-6-1.
FAAO 7110.65, Altitude Assignments, Para 7-7-5.

4-5-7. ALTITUDE INFORMATION

Issue altitude instructions as follows:

REFERENCE-
FAAO 7110.65, Clearance Items, Para 4-2-1.

a. Altitude to maintain or cruise. When issuing cruise in conjunction with an airport clearance limit and an unpublished route will be used, issue an appropriate crossing altitude to ensure terrain clearance until the aircraft reaches a fix, point, or route where the altitude information is available to the pilot. When issuing a cruise clearance to an airport which does not have a published instrument approach, a cruise clearance without a crossing restriction may be issued.

PHRASEOLOGY-
MAINTAIN/CRUISE (altitude). MAINTAIN (altitude) UNTIL (time, fix, waypoint),

or

(number of miles or minutes) MILES/MINUTES PAST (fix, waypoint).

CROSS (fix, point, waypoint),

or

INTERCEPT (route) AT OR ABOVE (altitude), CRUISE (altitude).

NOTE-
1. *The crossing altitude must assure IFR obstruction clearance to the point where the aircraft is established on a segment of a published route or instrument approach procedure.*

2. *When an aircraft is issued a cruise clearance to an airport which does not have a published instrument approach procedure, it is not possible to satisfy the requirement for a crossing altitude that will ensure terrain clearance until the aircraft reaches a fix, point, or route where altitude information is available to the pilot. Under those conditions, a cruise clearance without a crossing restriction authorizes a pilot to determine the minimum IFR altitude as prescribed in 14 CFR Section 91.177 and descend to it at pilot discretion if it is lower than the altitude specified in the cruise clearance.*

b. Instructions to climb or descend including restrictions, as required. Specify a time restriction reference the UTC clock reading with a time check. If you are relaying through an authorized communications provider, such as ARINC, FSS, etc., advise the radio operator to issue the current time to the aircraft when the clearance is relayed.

EXAMPLE-
1. *"United Four Seventeen, climb to reach one three thousand at two two one five."*
"Time two two one one and one-quarter."
The pilot is expected to be level at 13,000 feet at 2215 UTC.
2. Through Relay-*"Speedbird Five, climb to reach flight level three-five zero at one-two-one-five, time" (Issue a time check).*

REFERENCE-
FAAO 7110.65, Word Meanings, Para 1-2-1.
FAAO 7110.65, Numbers Usage, Para 2-4-17.

PHRASEOLOGY-
CLIMB/DESCEND AND MAINTAIN (altitude).

If required,

AFTER PASSING (fix, waypoint),

or

AT (time) (time in hours, minutes, and nearest quarter minute).

CLIMB/DESCEND TO REACH (altitude)
AT (time (issue time check) or fix, waypoint),

or

AT (time). CLIMB/DESCEND AND MAINTAIN (altitude) WHEN ESTABLISHED AT LEAST (number of miles or minutes) MILES/MINUTES PAST (fix, waypoint) ON THE (NAVAID) (specified) RADIAL.
CLIMB/DESCEND TO REACH (altitude) AT (time or fix, waypoint),

or

A POINT (number of miles) MILES (direction) OF (name of DME NAVAID),

or

MAINTAIN (altitude) UNTIL (time (issue time check), fix, waypoint), THEN CLIMB/DESCEND AND MAINTAIN (altitude).

Through relay:

CLIMB TO REACH (altitude) AT (time) (issue a time check).

c. Specified altitude over a specified fix, waypoint.

PHRASEOLOGY-
CROSS (fix, waypoint) AT (altitude).
CROSS (fix, waypoint) AT OR ABOVE/BELOW (altitude).

d. A specified altitude over a specified fix for that portion of a descent clearance where descent at pilot's discretion is permissible. At any other time it is practicable, authorize climb/descent at pilot's discretion.

PHRASEOLOGY-
CLIMB/DESCEND AT PILOT'S DISCRETION.

EXAMPLE-
"United Four Seventeen, descend and maintain six thousand."

NOTE-
The pilot is expected to commence descent upon receipt of the clearance and to descend at the suggested rates specified in the AIM, para 4-4-9, Adherence to Clearance, until reaching the assigned altitude of 6,000 feet.

EXAMPLE-
"United Four Seventeen, descend at pilot's discretion, maintain six thousand."

NOTE-
The pilot is authorized to conduct descent within the context of the term "at pilot's discretion" as described in the AIM.

EXAMPLE-
"United Four Seventeen cross Lakeview V-O-R at or above flight level two zero zero, descend and maintain six thousand."

NOTE-
The pilot is authorized to conduct descent "at pilot's discretion" until reaching Lakeview VOR. The pilot must comply with the clearance provision to cross the Lakeview VOR at or above FL 200, and after passing Lakeview VOR, the pilot is expected to descend at the rates specified in the AIM until reaching the assigned altitude of 6,000 feet.

EXAMPLE-
"United Four Seventeen, cross Lakeview V-O-R at and maintain six thousand."

NOTE-
The pilot is authorized to conduct descent "at pilot's discretion," but must comply with the clearance provision to cross Lakeview VOR at 6,000 feet.

EXAMPLE-
"United Four Seventeen, descend now to flight level two seven zero, cross Lakeview V-O-R at or below one zero thousand, descend and maintain six thousand."

NOTE-
The pilot is expected to promptly execute and complete descent to FL 270 upon receipt of the clearance. After reaching FL 270, the pilot is authorized to descend "at pilot's discretion" until reaching Lakeview VOR. The pilot must comply with the clearance provision to cross Lakeview VOR at or below 10,000 feet. After Lakeview VOR, the pilot is expected to descend at the rates specified in the AIM until reaching 6,000 feet.

NOTE-
1. *A descent clearance which specifies a crossing altitude authorizes descent at pilot's discretion for that portion of the flight to which the crossing altitude restriction applies.*

2. *Any other time that authorization to descend at pilot's discretion is intended, it must be specifically stated by the controller.*

3. *The pilot may need to know of any future restrictions that might affect the descent, including those that may be issued in another sector, in order to properly plan a descent at pilot's discretion.*

4. *Controllers need to be aware that the descent rates in the AIM are only suggested and aircraft will not always descend at those rates.*

REFERENCE-
P/CG Term- Pilot's Discretion.

e. When a portion of a climb/descent may be authorized at the pilot's discretion, specify the altitude the aircraft must climb/descend to followed by the altitude to maintain at the pilot's discretion.

PHRASEOLOGY-
CLIMB/DESCEND NOW TO (altitude), THEN CLIMB/DESCEND AT PILOT'S DISCRETION MAINTAIN (altitude).

EXAMPLE-
"United Three Ten, descend now to flight level two eight zero, then descend at pilot's discretion maintain flight level two four zero."

NOTE-
1. *The pilot is expected to commence descent upon receipt of the clearance and to descend at the suggested rates specified in the AIM, para 4-4-9, Adherence to Clearance, until reaching FL 280. At that point, the pilot is authorized to continue descent to FL 240 within the context of the term "at pilot's discretion" as described in the AIM.*

2. *Controllers need to be aware that the descent rates in the AIM are only suggested and aircraft will not always descend at those rates.*

f. When the "pilot's discretion" portion of a climb/descent clearance is being canceled by assigning a new altitude, inform the pilot that the new altitude is an "amended altitude."

EXAMPLE-
"American Eighty Three, amend altitude, descend and maintain Flight Level two six zero."

NOTE-
American Eighty Three, at FL 280, has been cleared to descend at pilot's discretion to FL 240. Subsequently, the altitude assignment is changed to FL 260. Therefore, pilot's discretion is no longer authorized.

g. Altitude assignments involving more than one altitude.

PHRASEOLOGY-
MAINTAIN BLOCK (altitude) THROUGH (altitude).

h. Instructions to vertically navigate on a STAR/FMPS with published restrictions.

PHRASEOLOGY-
DESCEND VIA (STAR/FMSP name and number).

EXAMPLE-
"Descend via the Mudde One Arrival."
"Cross JCT at flight level two four zero, then descend via the Coast Two Arrival."

NOTE-
Clearance to "descend via" authorizes a pilot's discretion descent to comply with published altitude and/or speed crossing restrictions. "Expect" altitudes/speeds are not considered STAR/FMSP crossing restrictions until verbally issued by ATC. They should be used only for planning purposes and should not be used in the event of lost communications, unless ATC has specifically advised the pilot to expect these altitudes/speeds as part of a further clearance.

REFERENCE-
14 CFR Section 91.185(c)(2)(iii)

1. If it is necessary to assign a crossing altitude which differs from the STAR/FMSP altitude, emphasize the change to the pilot.

PHRASEOLOGY-
DESCEND VIA THE (STAR/FMSP) ARRIVAL EXCEPT (revised altitude information).

REFERENCE-
FAAO 7110.65 Clearance Information, Para 4-7-1.
AIM, Standard Terminal Arrival (STAR), Flight Management System Procedures (FMSP) For Arrivals, Para 5-4-1.

i. When a pilot is unable to accept a clearance, issue revised instructions to ensure positive control and standard separation.

NOTE-
1. *14 CFR Section 91.123 states that a pilot is not allowed to deviate from an ATC clearance "that has been obtained... unless an amended clearance is obtained" (except when an emergency exists).*

2. *A pilot is therefore expected to advise the controller if a clearance cannot be accepted when the clearance is issued. "We will try" and other such acknowledgements do not constitute pilot acceptance of an ATC clearance.*

3. *Controllers are expected to issue ATC clearances which conform with normal operational capabilities for each aircraft and do not require "last minute" amendments to ensure standard separation.*

4. *"Expedite" is not to be used in lieu of appropriate restrictions to ensure separation.*

REFERENCE-
FAAO 7110.65, Providing Assistance, Para 10-1-3.

4-5-8. ANTICIPATED ALTITUDE CHANGES

If practicable, inform an aircraft when to expect climb or descent clearance or to request altitude change from another facility.

PHRASEOLOGY-
EXPECT HIGHER/LOWER IN (number of miles or minutes) MILES/MINUTES,

or

AT (fix). REQUEST ALTITUDE/FLIGHT LEVEL CHANGE FROM (name of facility).

If required,

AT (time, fix, or altitude).

REFERENCE-
FAAO 7110.65, IFR Flight Progress Data, Para 2-2-6.

4-5-9. ALTITUDE CONFIRMATION- NONRADAR

a. Request a pilot to confirm assigned altitude on initial contact and when position reports are received unless:

NOTE-
For the purpose of this paragraph, "initial contact" means a pilot's first radio contact with each sector/position.

1. The pilot states the assigned altitude, or

2. You assign a new altitude to a climbing or descending aircraft, or

3. *TERMINAL.* The aircraft was transferred to you from another sector/position within your facility (intrafacility).

PHRASEOLOGY-
(In level flight situations),

VERIFY AT (altitude/flight level).

(In climbing/descending situations),

(if aircraft has been assigned an altitude below the lowest useable flight level),

VERIFY ASSIGNED ALTITUDE (altitude).

(If aircraft has been assigned a flight level at or above the lowest useable flight level),

VERIFY ASSIGNED FLIGHT LEVEL (flight level).

b. *USA.* Reconfirm all pilot altitude read backs.

PHRASEOLOGY-
(If altitude read back is correct),
AFFIRMATIVE (altitude).

(If altitude read back is not correct),
NEGATIVE. CLIMB/DESCEND AND MAINTAIN (altitude),

or

NEGATIVE. MAINTAIN (altitude).

Section 6. Holding Aircraft

4-6-1. CLEARANCE TO HOLDING FIX

Consider operational factors such as length of delay, holding airspace limitations, navigational aids, altitude, meteorological conditions when necessary to clear an aircraft to a fix other than the destination airport. Issue the following:

a. Clearance limit (if any part of the route beyond a clearance limit differs from the last routing cleared, issue the route the pilot can expect beyond the clearance limit).

PHRASEOLOGY-
EXPECT FURTHER CLEARANCE VIA (routing).

EXAMPLE-
"Expect further clearance via direct Stillwater V-O-R, Victor Two Twenty-Six Snapy intersection, direct Newark."

b. Holding instructions.

1. Holding instructions may be eliminated when you inform the pilot that no delay is expected.

2. When the pattern is charted, you may omit all holding instructions except the charted holding direction and the statement "as published." Always issue complete holding instructions when the pilot requests them.

NOTE-
The most generally used holding patterns are depicted on U.S. Government or commercially produced low/high altitude en route, area, and STAR Charts.

PHRASEOLOGY-
CLEARED TO (fix), HOLD (direction), AS PUBLISHED,

or

CLEARED TO (fix), NO DELAY EXPECTED.

c. EFC. Do not specify this item if no delay is expected.

1. When additional holding is expected at any other fix in your facility's area, state the fix and your best estimate of the additional delay. When more than one fix is involved, state the total additional en route delay (omit specific fixes).

NOTE-
Additional delay information is not used to determine pilot action in the event of two-way communications failure. Pilots are expected to predicate their actions solely on the provisions of 14 CFR Section 91.185.

PHRASEOLOGY-
EXPECT FURTHER CLEARANCE (time),

and if required,

ANTICIPATE ADDITIONAL (time in minutes/hours) MINUTE/HOUR DELAY AT (fix),

or

ANTICIPATE ADDITIONAL (time in minutes/hours) MINUTE/HOUR EN ROUTE DELAY.

EXAMPLE-
1. *"Expect further clearance one niner two zero, anticipate additional three zero minute delay at Sweet."*

2. *"Expect further clearance one five one zero, anticipate additional three zero minute en route delay."*

2. When additional holding is expected in an approach control area, state the total additional terminal delay.

PHRASEOLOGY-
EXPECT FURTHER CLEARANCE (time),

and if required,

ANTICIPATE ADDITIONAL (time in minutes/hours) MINUTE/HOUR TERMINAL DELAY.

3. *TERMINAL.* When terminal delays exist or are expected, inform the appropriate center or approach control facility so that the information can be forwarded to arrival aircraft.

4. When delay is expected, issue items in subparas a and b at least 5 minutes before the aircraft is estimated to reach the clearance limit. If the traffic situation requires holding an aircraft that is less than 5 minutes from the holding fix, issue these items immediately.

NOTE-
1. *The AIM indicates that pilots should start speed reduction when 3 minutes or less from the holding fix. The additional 2 minutes contained in the 5-minute requirement are necessary to compensate for different pilot/controller ETAS at the holding fix, minor differences in clock times, and provision for sufficient planning and reaction times.*

2. *When holding is necessary, the phrase "delay indefinite" should be used when an accurate estimate of the delay time and the reason for the delay cannot immediately be determined; i.e., disabled aircraft on the runway, terminal*

or center sector saturation, weather below landing minimums, etc. In any event, every attempt should be made to provide the pilot with the best possible estimate of his/her delay time and the reason for the delay. Controllers/supervisors should consult, as appropriate, with personnel (other sectors, weather forecasters, the airport management, other facilities, etc.) who can best provide this information.

PHRASEOLOGY-
DELAY INDEFINITE, (reason if known), EXPECT FURTHER CLEARANCE (time). (After determining the reason for the delay, advise the pilot as soon as possible.)

EXAMPLE-
"Cleared to Drewe, hold west, as published, expect further clearance via direct Sidney V-O-R one three one five, anticipate additional two zero minute delay at Woody."

"Cleared to Aston, hold west on Victor two twenty-five, seven mile leg, left turns, expect further clearance one niner two zero, anticipate additional one five minute terminal delay."

"Cleared to Wayne, no delay expected."

"Cleared to Wally, hold north, as published, delay indefinite, snow removal in progress, expect further clearance one one three zero."

4-6-2. CLEARANCE BEYOND FIX

a. If no delay is expected, issue a clearance beyond the clearance limit as soon as possible and, whenever possible, at least 5 minutes before the aircraft reaches the fix.

b. Include the following items when issuing clearance beyond a clearance limit:

1. Clearance limit or approach clearance.

2. Route of flight. Specify one of the following:

(a) Complete details of the route (airway, route, course, fix(es), azimuth course, heading, arc, or vector.)

(b) The phrase "via last routing cleared." Use this phrase only when the most recently issued routing to the new clearance limit is valid and verbiage will be reduced.

PHRASEOLOGY-
VIA LAST ROUTING CLEARED.

3. Assigned altitude if different from present altitude.

NOTE-
Except in the event of a two-way communications failure, when a clearance beyond a fix has not been received, pilots are expected to hold as depicted on U.S. Government or commercially produced (meeting FAA requirements) low/high altitude en route and area or STAR charts. If no holding pattern is charted and holding instructions have not been issued, pilots should ask ATC for holding instructions prior to reaching the fix. If a pilot is unable to obtain holding instructions prior to reaching the fix, the pilot is expected to hold in a standard pattern on the course on which the aircraft approached the fix and request further clearance as soon as possible.

4-6-3. DELAYS

a. Advise your supervisor or flow controller as soon as possible when you delay or expect to delay aircraft.

b. When arrival delays reach or are anticipated to reach 30 minutes, take the following action:

1. *EN ROUTE.* The center responsible for transferring control to an approach control facility or, for a nonapproach control destination, the center in whose area the aircraft will land shall issue total delay information as soon as possible after the aircraft enters the center's area. Whenever possible, the delay information shall be issued by the first center controller to communicate with the aircraft.

2. *TERMINAL.* When tower en route control service is being provided, the approach control facility whose area contains the destination airport shall issue total delay information as soon as possible after the aircraft enters its approach control area. Whenever possible, the delay information shall be issued by the first terminal controller to communicate with the aircraft.

3. Unless a pilot requests delay information, the actions specified in subparas 1 and 2 above may be omitted when total delay information is available to pilots via ATIS.

PHRASEOLOGY-
(Airport) ARRIVAL DELAYS (time in minutes/hours).

4-6-4. HOLDING INSTRUCTIONS

When issuing holding instructions, specify:

a. Direction of holding from the fix/waypoint.

b. Holding fix or waypoint.

NOTE-
The holding fix may be omitted if included at the beginning of the transmission as the clearance limit.

c. Radial, course, bearing, track, azimuth, airway, or route on which the aircraft is to hold.

d. Leg length in miles if DME or RNAV is to be used. Specify leg length in minutes if the pilot requests it or you consider it necessary.

e. Direction of holding pattern turns only if left turns are to be made, the pilot requests it, or you consider it necessary.

PHRASEOLOGY-
HOLD (direction) OF (fix/waypoint) ON (specified radial, course, bearing, track, airway, azimuth(s), or route.)

If leg length is specified,

(number of minutes/miles) MINUTE/MILE LEG.

If direction of turn is specified,

LEFT/RIGHT TURNS.

NOTE-
It is mandatory for the controller to issue left or right turns every time a holding pattern is issued for MLS.

f. Issue maximum holding airspeed advisories when an aircraft is:

1. Approved to exceed the maximum airspeed of a pattern, and is cleared into a holding pattern that will protect for the greater speed; or

2. Observed deviating from the holding pattern airspace area; or

3. Cleared into an airspeed restricted holding pattern in which the icon has not been published.

EXAMPLE-
Due to turbulence, a turboprop requests to exceed the recommended maximum holding airspeed. ATCS may clear the aircraft into a pattern that protects for the airspeed request, and shall advise the pilot of the maximum holding airspeed for the holding pattern airspace area.

PHRASEOLOGY-
"MAXIMUM HOLDING AIRSPEED IS TWO ONE ZERO KNOTS."

4-6-5. VISUAL HOLDING POINTS

You may use as a holding fix a location which the pilot can determine by visual reference to the surface if he/she is familiar with it.

PHRASEOLOGY-
HOLD AT (location) UNTIL (time or other condition.)

REFERENCE-
FAAO 7110.65, Visual Holding of VFR Aircraft, Para 7-1-4.

4-6-6. HOLDING FLIGHT PATH DEVIATION

Approve a pilot's request to deviate from the prescribed holding flight path if obstacles and traffic conditions permit.

4-6-7. UNMONITORED NAVAID'S

Separate an aircraft holding at an unmonitored NAVAID from any other aircraft occupying the course which the holding aircraft will follow if it does not receive signals from the NAVAID.

4-6-8. ILS PROTECTION/CRITICAL AREAS

When conditions are less than reported ceiling 800 feet and/or visibility of 2 miles, do not authorize aircraft to hold below 5,000 feet AGL inbound toward the airport on or within 1 statute mile of the localizer between the ILS OM or the fix used in lieu of the OM and the airport. *USAF.* The holding restriction applies only when an arriving aircraft is between the ILS OM or the fix used in lieu of the OM and the runway.

REFERENCE-
FAAO 7130.3, Holding Pattern Criteria, Para 54 and FIG 20.

Section 7. Arrival Procedures

4-7-1. CLEARANCE INFORMATION

Clear an arriving aircraft to a clearance limit by specifying the following:

a. Name of fix or airport.

b. Route of flight including a STAR/FMSP and STAR/FMSP Transition, if appropriate. Assign a STAR and STAR Transition to any aircraft in lieu of other routes; e.g., airways or Preferential Arrival Routes when the routings are the same. Assign a FMSP or FMSP Transition to any appropriately equipped aircraft. The clearance shall include the name, the current number, and the transition, if necessary, of the STAR or FMSP to be flown.

PHRASEOLOGY-
(STAR/FMSP name and number) ARRIVAL.
(STAR/FMSP name and number) ARRIVAL, (transition name) TRANSITION.

EXAMPLE-
"Rosewood One arrival."
"Rosewood One arrival, Delta transition."

NOTE-
If a civil pilot does not wish to use a STAR or FMSP issued in an ATC clearance or any other STAR or FMSP published for that location, the pilot is expected to advise ATC.

c. Altitude instructions, as follows:

1. Assigned altitude; or

2. Instructions to vertically navigate on the STAR/FMSP or STAR/FMSP transition.

EXAMPLE-
"Bayview Three RNAV Arrival, Helen Transition, maintain Flight Level Three Three Zero."
"Descend via the Civit One Arrival."
"Cross JCT at Flight Level Two Four Zero."
"Descend via the Coast Two Arrival."
"Civit One Arrival, Descend and Maintain Flight Level Two Four Zero."

REFERENCE-
FAAO 7110.65, Altitude Information, Para 4-5-7.
AIM, Standard Terminal Arrival (STAR), Flight Management System Procedures (FMSP) For Arrivals, Para 5-4-1.

d. Issue holding instructions, EFC, and additional delay information as required.

e. Instructions regarding further communications as appropriate.

REFERENCE-
FAAO 7110.65, Radio Communications Transfer, Para 2-1-17.

4-7-2. ADVANCE DESCENT CLEARANCE

EN ROUTE

Take the following action when exercising control of aircraft landing at an airport located in an adjacent center's control area near the common boundary:

a. Coordinate with the receiving facility for a lower altitude and issue a clearance to the aircraft as appropriate.

b. Initiate this action at a distance sufficient from destination to allow for normal descent and speed reduction.

4-7-3. SINGLE FREQUENCY APPROACHES (SFA)

TERMINAL

Where SFA procedures for military single-piloted turbojet aircraft on an IFR flight plan are contained in a letter of agreement, do not require a radio frequency change after the aircraft begins approach or after initial contact during an en route descent until a landing or low approach has been completed except under the following conditions:

REFERENCE-
FAAO 7610.4, Special Military Operations, Single Frequency Approach (SFA), Para 9-3-6.
P/CG Term- Single-Piloted Aircraft.

a. During daylight hours while the aircraft is in VFR conditions.

b. On pilot request.

c. When pilot cancels IFR flight plan.

d. In an emergency situation.

e. When aircraft is cleared for visual approach.

4-7-4. RADIO FREQUENCY AND RADAR BEACON CHANGES FOR MILITARY AIRCRAFT

When military single-piloted turbojet aircraft will conduct an approach wholly or partly in IFR conditions or at night, take the following action:

NOTE-
It is known that the mental distraction and the inadvertent movement of aircraft controls resulting from the pilot's turning, reaching, or leaning to change frequencies can induce spatial disorientation (vertigo).

a. Avoid radio frequency and radar beacon changes to the maximum extent that communications capabilities and traffic will permit. However, when changes are required:

1. Give instructions early enough to allow the change before the aircraft reaches the approach fix or handoff point.

2. Keep frequency/radar beacon changes to a minimum below 2,500 feet above the surface.

3. Avoid requiring frequency/radar beacon changes during the time the aircraft is making a turn.

b. When traffic volume requires, a frequency other than the one used by aircraft making approaches may be assigned for use in transferring control to the approach control facility.

TERMINAL

c. If practicable, use a frequency common to both the GCA unit and approach control to minimize frequency changes.

d. When a GCA unit is not able to communicate on a common frequency, a change to a GCA frequency may be authorized.

e. When a nonradar approach will be made, aircraft may be instructed to change to tower frequency when:

1. The reported ceiling is at or above 1,500 feet and visibility is 5 statute miles or more.

2. The aircraft reports able to proceed by visual reference to the surface.

3. The aircraft requests and is cleared for a contact approach.

4. The aircraft is cleared for a visual approach.

f. Avoid making frequency/radar beacon changes after an aircraft begins a high altitude approach.

g. In the event of a missed approach, do not require a frequency/radar beacon change before the aircraft reaches the missed approach altitude, the MEA, or the MVA.

REFERENCE-
FAAO 7110.65, Function Code Assignments, Para 5-2-6.

4-7-5. MILITARY TURBOJET EN ROUTE DESCENT

Provide military turbojet aircraft the same arrival procedures that are provided for nonmilitary turbojet aircraft except:

NOTE-
It is the responsibility of the pilot to request a high altitude approach if he/she does not want normal arrival handling.

a. An en route descent may be used in a nonradar environment; however, radar capability should exist which will permit the aircraft to be vectored to the final approach course of a published high altitude instrument approach procedure or PAR/ASR approach. Do not use this procedure if other than normal vectoring delays are anticipated.

b. Prior to issuance of a descent clearance below the highest initial approach fix altitude established for any high altitude instrument approach procedure for the destination airport inform the aircraft:

1. Type of approach to expect.

EXAMPLE-
"Expect V-O-R approach to runway three two."

2. Radar vectors will be provided to the final approach course.

EXAMPLE-
"Expect surveillance/precision approach to runway one seven; radar vectors to final approach course."

3. Current weather whenever the ceiling is below 1,000 feet (**USAF:** 1,500 feet) or the highest circling minimum whichever is greater, or when the visibility is less than 3 miles.

EXAMPLE-
"Expect ILS/MLS approach to runway eight; radar vectors to localizer/azimuth course. Weather (reported weather)."

c. If ATIS is provided and the pilot advises he/she has received the current ATIS broadcast before the descent clearance in subpara **b** is issued, omit those items in subpara b that are contained in the broadcast.

d. To avoid requiring an aircraft to fly at low altitudes for an excessive distance, descent clearance should be issued at a point determined by adding 10 to the first two digits of the flight level.

EXAMPLE-
For FL 370, 37 + 10 = 47 miles.

NOTE-
Turbojet en route descents are based on a rate of descent of 4,000 to 6,000 feet per minute.

e. Do not terminate the en route descent of an aircraft without the consent of the pilot except as required by radar outage or an emergency situation.

REFERENCE-
FAAO 7110.65, Altitude Assignment for Military High Altitude Instrument Approaches, Para 4-8-4.

4-7-6. ARRIVAL INFORMATION

EN ROUTE

a. Forward the following information to nonapproach control towers soon enough to permit adjustment of the traffic flow or to FSS's soon enough to provide local airport advisory where applicable:

1. Aircraft identification.

2. Type of aircraft.

3. ETA.

4. Type of instrument approach procedure the aircraft will execute; or

5. For SVFR, the direction from which the aircraft will enter Class B, Class C, Class D, or Class E surface area and any altitude restrictions that were issued; or

6. For aircraft executing a contact approach the position of the aircraft.

NOTE-
Specific time requirements are usually stated in a letter of agreement.

b. Forward the following information to approach control facilities before transfer of control jurisdiction:

NOTE-
Transfer points are usually specified in a letter of agreement.

1. Aircraft identification.

2. Type of aircraft and appropriate aircraft equipment suffix.

3. ETA or actual time, and proposed or actual altitude over clearance limit. The ETA need not be given if the arrival information is being forwarded during a radar handoff.

4. Clearance limit (when other than the destination airport) and EFC issued to the aircraft. Clearance limit may be omitted when provided for in a letter of agreement.

5. Time, fix, or altitude when control responsibility is transferred to the approach control facility. This information may be omitted when provided for in a letter of agreement.

PHRASEOLOGY-
(Identification), (type of aircraft), ESTIMATED/OVER (clearance limit), (time), (altitude), EFC (time).

If required,

YOUR CONTROL,

or

YOUR CONTROL AT (time, fix or altitude).

4-7-7. WEATHER INFORMATION

EN ROUTE

When an available official weather report indicates weather conditions are below a 1,000-foot (*USAF:* 1,500-foot) ceiling or below the highest circling minimum, whichever is higher, or less than three-miles visibility for the airport concerned, transmit the weather report and changes classified as special weather observations to an arriving aircraft prior to or as part of the approach clearance when:

a. It is transmitted directly to the pilot via center controller-to-pilot communications.

b. It is relayed through a communications station other than an air carrier company radio or through a nonapproach control facility. You may do this by telling the station or nonapproach control facility to issue current weather.

4-7-8. BELOW MINIMA REPORT BY PILOT

If an arriving aircraft reports weather conditions are below his/her landing minima:

NOTE-
Determination that existing weather/visibility is adequate for approach/landing is the responsibility of the pilot/aircraft operator.

a. Issue appropriate instructions to the aircraft to hold or proceed to another airport.

b. Adjust, as necessary, the position in the landing sequence of any other aircraft desiring to make approaches and issue approach clearances accordingly.

4-7-9. TRANSFER OF JURISDICTION

Transfer radio communications and control responsibility early enough to allow the receiving facility to clear an aircraft beyond the clearance limit before the aircraft reaches it.

4-7-10. APPROACH INFORMATION

a. Both en route and terminal approach control sectors shall provide current approach information to aircraft destined to airports for which they provide approach control services. This information shall be provided on initial contact or as soon as possible thereafter. Approach information contained in the ATIS broadcast may be omitted if the pilot states the appropriate ATIS code or items 3-5 below may be omitted for pilots destined to uncontrolled airports when they advise receipt of the automated weather; otherwise, issue approach information by including the following:

1. Approach clearance or type approach to be expected if two or more approaches are published and the clearance limit does not indicate which will be used.

2. Runway if different from that to which the instrument approach is made.

3. Surface wind.

4. Ceiling and visibility if the reported ceiling at the airport of intended landing is below 1,000 feet or below the highest circling minimum, whichever is greater, or the visibility is less than 3 miles.

5. Altimeter setting for the airport of intended landing.

REFERENCE-
FAAO 7110.65, Chapter 2, Section 7, Altimeter Settings.

b. Upon pilot request, controllers shall inform pilots of the frequency where automated weather data may be obtained and, if appropriate, that airport weather is not available.

PHRASEOLOGY-
(Airport) AWOS/ASOS WEATHER AVAILABLE ON (frequency).

1. ASOS/AWOS shall be set to provide one minute weather at uncontrolled airports that are without ground-to-air weather broadcast capability by a CWO, NWS or FSS observer.

2. Controllers will consider the long-line disseminated weather from an automated weather system at an uncontrolled airport as trend information only and shall rely on the pilot for the current weather information for that airport.

3. Controllers shall issue the last long-line disseminated weather to the pilot if the pilot is unable to receive the ASOS/AWOS broadcast.

NOTE-
Aircraft destined to uncontrolled airports, which have automated weather data with broadcast capability, should monitor the ASOS/AWOS frequency to ascertain the current weather at the airport. The pilot should advise the controller when he/she has received the broadcast weather and state his/her intentions.

c. Issue any known changes classified as special weather observations as soon as possible. Special weather observations need not be issued after they are included in the ATIS broadcast and the pilot states the appropriate ATIS code.

d. Advise pilots when the ILS/MLS on the runway in use is not operational if that ILS/MLS is on the same frequency as an operational ILS/MLS serving another runway.

EXAMPLE-
"Expect visual approach runway two five right, runway two five right I-L-S not operational."

REFERENCE-
FAAO 7110.65, Altimeter Setting Issuance Below Lowest Usable FL, Para 2-7-2.
FAAO 7110.65, Approach Information, Para 5-10-2.
14 CFR Section 91.129 Operations in Class D Airspace, Subpara (d)(2).

4-7-11. ARRIVAL INFORMATION BY APPROACH CONTROL FACILITIES

TERMINAL

a. Forward the following information to nonapproach control towers soon enough to permit adjustment of the traffic flow or to FSS's soon enough to provide local airport advisory where applicable:

1. Aircraft identification.

2. Type of aircraft.

3. ETA.

4. Type of instrument approach procedure the aircraft will execute; or

5. For SVFR, the direction from which the aircraft will enter Class B, Class C, Class D, or Class E surface area and any altitude restrictions that were issued; or

6. For aircraft executing a contact approach, the position of the aircraft.

NOTE-
Specific time requirements are usually stated in a letter of agreement.

b. Forward the following information to the tower when the tower and TRACON are part of the same facility:

1. Aircraft identification.

2. Type aircraft if required for separation purposes.

3. Type of instrument approach procedure and/or runway if differing from that in use.

NOTE-
The local controller has the responsibility to determine whether or not conditions are adequate for the use of ATTS data on the CTRD where a facility directive authorizes its use for the transfer of arrival data.

REFERENCE-
FAAO 7210.3, Use of Modify and Quick Look Functions, Para 11-2-4.
FAAO 7210.3, Use of STARS Quick Look Functions, Para 11-8-4.

c. Where the collocated or satellite tower has ATTS data displayed on its CTRD, the ATTS modify or quick look functions may be used to forward arrival data provided that a facility directive at the collocated tower or a letter of agreement with the satellite tower exists which outlines procedures for using ATTS for transferring this data.

d. Forward the following information to centers:

1. Where two or more instrument approach procedures are published for the airport, the particular procedure which an aircraft can expect or that it will be vectored toward the airport for a visual approach.

2. Highest altitude being used by the approach control facility at the holding fix.

3. Average time interval between successive approaches.

4. Arrival time of aircraft over the holding fix or, if control has been transferred to you before an aircraft has reached the fix, a statement or other indication acknowledging receipt of control responsibility.

5. Revised EFC if different by 10 minutes or more from that issued by the center.

6. Missed approaches if they affect center operations.

7. Information relating to an unreported or overdue aircraft.

4-7-12. AIRPORT CONDITIONS

a. *EN ROUTE.* Before issuing an approach clearance or en route descent, and subsequently as changes occur, inform an aircraft of any abnormal operation of approach and landing aids and of destination airport conditions that you know of which might restrict an approach or landing.

b. *TERMINAL.* On first contact or as soon as possible thereafter, and subsequently as changes occur, inform an aircraft of any abnormal operation of approach and landing aids and of destination airport conditions that you know of which might restrict an approach or landing. This information may be omitted if it is contained in the ATIS broadcast and the pilot states the appropriate ATIS code.

REFERENCE-
FAAO 7110.65, Chapter 3, Section 3, Airport Conditions.

c. *TERMINAL.* Where RCR's are provided, transmit this information to USAF and ANG aircraft in accordance with one of the following. Issue the RCR to other aircraft upon pilot request.

1. Before or when an approach clearance is issued.

2. Before an en route descent clearance is issued.

3. Prior to departure.

4. As soon as possible after receipt of any subsequent changes in previously issued RCR information.

NOTE-
1. USAF has established RCR procedures for determining the average deceleration readings of runways under conditions of water, slush, ice, or snow. The use of RCR code is dependent upon the pilot having a "stopping capability chart" specifically applicable to his/her aircraft.

2. USAF offices furnish RCR information at airports serving USAF and ANG aircraft.

REFERENCE-
FAAO 7110.65, Landing Area Condition, Para 3-3-1.

4-7-13. SWITCHING ILS/MLS RUNWAYS

TERMINAL

When a change is made from one ILS to another or from one MLS to another at airports equipped with multiple systems which are not used simultaneously, coordinate with the facilities which use the fixes formed by reference to these NAVAID's.

Section 8. Approach Clearance Procedures

4-8-1. APPROACH CLEARANCE

a. Clear aircraft for "standard" or "special" instrument approach procedures only. To require an aircraft to execute a particular instrument approach procedure, specify in the approach clearance the name of the approach as published on the approach chart. Where more than one procedure is published on a single chart and a specific procedure is to be flown, amend the approach clearance to specify execution of the specific approach to be flown. If only one instrument approach of a particular type is published, the approach needs not be identified by the runway reference. An aircraft conducting an ILS/MLS approach when the glideslope/glidepath is reported out of service shall be advised at the time an approach clearance is issued. Standard Instrument Approach Procedures shall commence at an Initial Approach Fix or an Intermediate Approach Fix if there is not an Initial Approach Fix. Where adequate radar coverage exists, radar facilities may vector aircraft to the final approach course in accordance with para 5-9-1, Vectors to Final Approach Course.

PHRASEOLOGY-
CLEARED (type) APPROACH.

(For a straight-in-approach- IFR),

CLEARED STRAIGHT-IN (type) APPROACH.

(To authorize a pilot to execute his/her choice of instrument approach),

CLEARED APPROACH.

(Where more than one procedure is published on a single chart and a specific procedure is to be flown),

CLEARED (specific procedure to be flown) APPROACH.

(To authorize a pilot to execute an ILS/MLS approach when the glideslope/glidepath is out of service),

CLEARED (type) APPROACH, GLIDESLOPE/GLIDEPATH UNUSABLE.

EXAMPLE-
"Cleared Approach."
"Cleared V-O-R Approach."
"Cleared V-O-R Runway Three Six Approach."
"Cleared F-M-S Approach."
"Cleared F-M-S Runway Three Six Approach."
"Cleared I-L-S Approach."
"Cleared Localizer Back Course Runway One Three Approach."
"Cleared R-NAV Runway Two Two Approach."
"Cleared GPS Runway Two Approach."
"Cleared BRANCH ONE R-NAV Arrival and R-NAV Runway One Three Approach."
"Cleared I-L-S Runway Three Six Approach, glideslope unusable."
"Cleared M-L-S Approach."
"Cleared M-L-S Runway Three Six Approach."
"Cleared M-L-S Runway Three Six Approach, glidepath unusable."

NOTE-
1. *Clearances authorizing instrument approaches are issued on the basis that, if visual contact with the ground is made before the approach is completed, the entire approach procedure will be followed unless the pilot receives approval for a contact approach, is cleared for a visual approach, or cancels their IFR flight plan.*

2. *Approach clearances are issued based on known traffic. The receipt of an approach clearance does not relieve the pilot of his/her responsibility to comply with applicable Parts of Title 14 of the Code of Federal Regulations and the notations on instrument approach charts which levy on the pilot the responsibility to comply with or act on an instruction; e.g., "Straight-in minima not authorized at night," "Procedure not authorized when glideslope/glidepath not used," "Use of procedure limited to aircraft authorized to use airport," or "Procedure not authorized at night."*

3. *The name of the approach, as published, is used to identify the approach, even though a component of the approach aid, other than the localizer on an ILS or the azimuth on an MLS is inoperative. Where more than one procedure to the same runway is published on a single chart, each must adhere to all final approach guidance contained on that chart, even though each procedure will be treated as a separate entity when authorized by ATC. For example, Instrument Approach Procedures published on a chart as either HI-VOR/DME or TACAN 1 would be stated as either "HI V-O-R/D-M-E 1 Runway Six Left Approach" or "HI TACAN 1 Runway Six Left Approach." The use of numerical identifiers in the approach name, such as "HI TACAN 1 Rwy 6L or HI TACAN 2 Rwy 6L," denotes multiple straight-in approaches to the same runway that use the same approach aid. Alphabetical suffixes denote a procedure that does not meet the criteria for straight-in landing minimums authorization."*

4. *14 CFR Section 91.175(j) requires a pilot to receive a clearance for a procedure turn when vectored to a final*

approach fix or position, conducting a timed approach, or when the procedure specifies "NO PT."

5. *An aircraft which has been cleared to a holding fix and prior to reaching that fix is issued a clearance for an approach, but not issued a revised routing; i.e., "proceed direct to. . . ." may be expected to proceed via the last assigned route, a feeder route (if one is published on the approach chart), and then to commence the approach as published. If, by following the route of flight to the holding fix, the aircraft would overfly an IAF or the fix associated with the beginning of a feeder route to be used, the aircraft is expected to commence the approach using the published feeder route to the IAF or from the IAF as appropriate; i.e., the aircraft would not be expected to overfly and return to the IAF or feeder route.*

REFERENCE-
FAAO 8260.3, United States Standard for Terminal Instrument Procedures (TERPS).

b. For aircraft operating on unpublished routes, issue the approach clearance only after the aircraft is: (See FIG 4-8-1.)

Approach Clearance Example

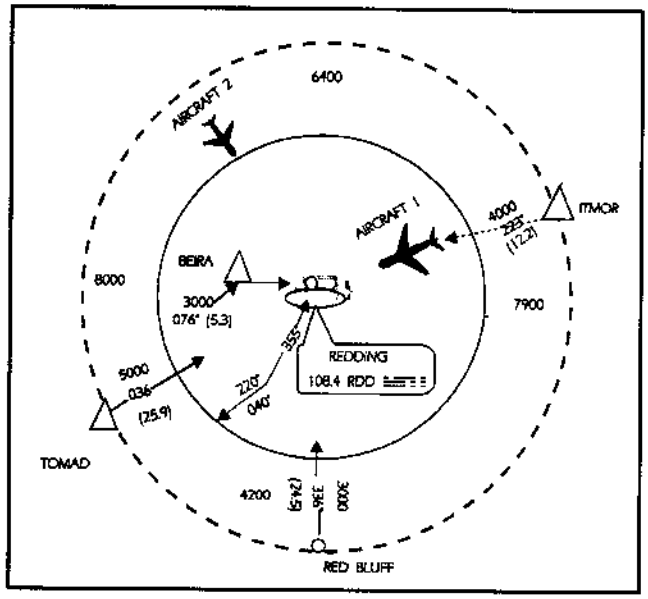

FIG 4-8-1

1. Established on a segment of a published route or instrument approach procedure.

EXAMPLE-
Aircraft 1: The aircraft is established on a segment of a published route at 5,000 feet. "Cleared V-O-R Runway Three Four Approach."

2. Assigned an altitude to maintain until the aircraft is established on a segment of a published route or instrument approach procedure.

EXAMPLE-
Aircraft 2: The aircraft is inbound to the VOR on an unpublished direct route at 7,000 feet. The minimum IFR altitude for IFR operations (14 CFR Section 91.177) along this flight path to the VOR is 5,000 feet. "Cross the Redding V-O-R at or above five thousand, cleared V-O-R Runway Three Four Approach."

NOTE-
1. *The altitude assigned must assure IFR obstruction clearance from the point at which the approach clearance is issued until established on a segment of a published route or instrument approach procedure.*

2. *If the altitude assignment is VFR-on-top, it is conceivable that the pilot may elect to remain high until arrival over the final approach fix which may require the pilot to circle to descend so as to cross the final approach fix at an altitude that would permit landing.*

c. Except when applying radar procedures, timed or visual approaches, clear an aircraft for an approach to an airport when the preceding aircraft has landed or canceled IFR flight plan.

d. Where instrument approaches require radar monitoring and radar services are not available, do not use the phraseology "cleared approach," which allows the pilot his/her choice of instrument approaches.

e. Where a Terminal Arrival Area (TAA) has been established to support RNAV approaches use the procedures under subpara b above. (See FIG 4-8-2.)

EXAMPLE-
Aircraft 1: The aircraft has crossed the TAA boundary and is established on a segment of the approach. "Cleared R-NAV Runway One Eight Approach."

Aircraft 2: The aircraft is inbound to the CHARR (right corner) IAF on an unpublished direct route at 7,000 feet. The minimum IFR altitude for IFR operations (14 CFR Section 91.177) along this flight path to the IAF is 5,000 feet. "Cleared to CHARR, Maintain at or above five thousand until entering the TAA, Cleared R-NAV Runway One Eight Approach."

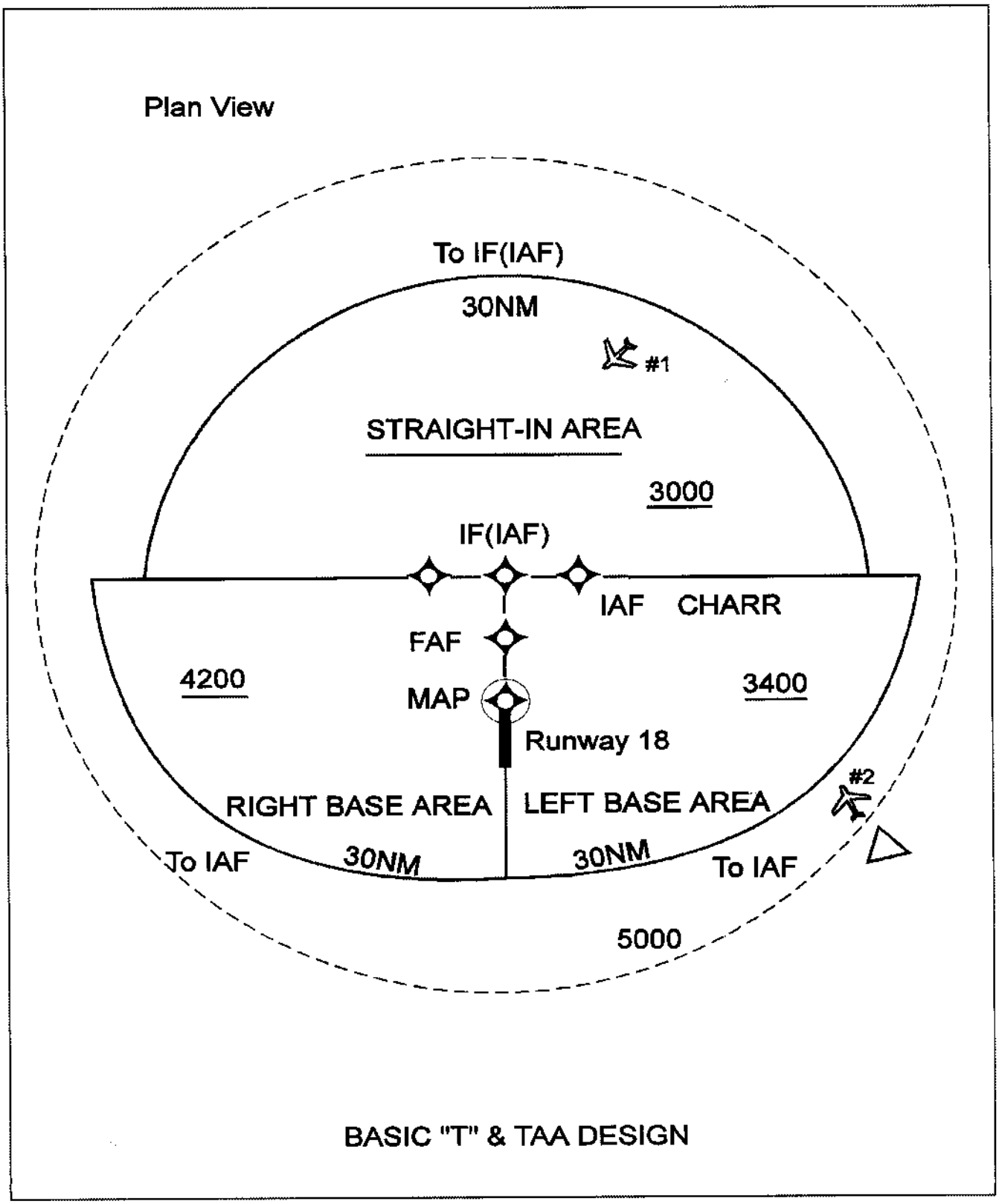
Plan View
To IF(IAF)
30NM
#1
STRAIGHT-IN AREA
3000
IF(IAF)
IAF
CHARR
FAF
4200
MAP
3400
Runway 18
#2
RIGHT BASE AREA
LEFT BASE AREA
To IAF
30NM
30NM
To IAF
5000
BASIC "T" & TAA DESIGN

FIG 4-8-2

4-8-2. CLEARANCE LIMIT

Issue approach or other clearances, as required, specifying the destination airport as the clearance limit if airport traffic control service is not provided even though this is a repetition of the initial clearance.

4-8-3. RELAYED APPROACH CLEARANCE

TERMINAL

Include the weather report, when it is required and available, when an approach clearance is relayed through a communication station other than an air carrier company radio. You may do this by telling the station to issue current weather.

4-8-4. ALTITUDE ASSIGNMENT FOR MILITARY HIGH ALTITUDE INSTRUMENT APPROACHES

Altitudes above those shown on the high altitude instrument approach procedures chart may be specified when required for separation.

NOTE-
To preclude the possibility of aircraft exceeding rate-of-descent or airspeed limitations, the maximum altitudes which may be assigned for any portion of the high altitude instrument approach procedure will be determined through coordination between the ATC facility concerned and the military authority which originated the high altitude instrument approach procedure.

REFERENCE-
FAAO 7110.65, Military Turbojet En Route Descent, Para 4-7-5.

4-8-5. SPECIFYING ALTITUDE

Specify in the approach clearance the altitude shown in the approach procedures when adherence to that altitude is required for separation. When vertical separation will be provided from other aircraft by pilot adherence to the prescribed maximum, minimum, or mandatory altitudes, the controller may omit specifying the altitude in the approach clearance.

NOTE-
Use NOS or NIMA instrument approach procedures charts appropriate for the aircraft executing the approach.

4-8-6. CIRCLING APPROACH

a. Circling approach instructions may only be given for aircraft landing at airports with operational control towers.

b. Include in the approach clearance instructions to circle to the runway in use if landing will be made on a runway other than that aligned with the direction of instrument approach. When the direction of the circling maneuver in relation to the airport/runway is required, state the direction (eight cardinal compass points) and specify a left or right base/downwind leg as appropriate.

PHRASEOLOGY-
CIRCLE TO RUNWAY (number),

or

CIRCLE (direction using eight cardinal compass points) OF THE AIRPORT/RUNWAY FOR A LEFT/RIGHT BASE/ DOWNWIND TO RUNWAY (number).

NOTE-
Where standard instrument approach procedures (SIAP) authorize circling approaches, they provide a basic minimum of 300 feet of obstacle clearance at the MDA within the circling area considered. The dimensions of these areas, expressed in distances from the runways, vary for the different approach categories of aircraft. In some cases a SIAP may otherwise restrict circling approach maneuvers.

c. Do not issue clearances, such as "extend downwind leg," which might cause an aircraft to exceed the circling approach area distance from the runways within which required circling approach obstacle clearance is assured.

4-8-7. SIDE-STEP MANEUVER

TERMINAL

Side-Step Maneuver. When authorized by an instrument approach procedure, you may clear an aircraft for an approach to one runway and inform the aircraft that landing will be made on a parallel runway.

EXAMPLE-
"Cleared I-L-S Runway seven left approach. Side-step to runway seven right."

NOTE-
Side-step maneuvers require higher weather minima/MDA. These higher minima/MDA are published on the instrument approach charts.

REFERENCE-
FAAO 7110.65, Closed/Unsafe Runway Information, Para 3-3-2.
P/CG Term- Sidestep Maneuver.

4-8-8. COMMUNICATIONS RELEASE

If an IFR aircraft intends to land at an airport not served by a tower or FSS, approve a change to the advisory service frequency when you no longer require direct communications.

PHRASEOLOGY-
CHANGE TO ADVISORY FREQUENCY APPROVED.

NOTE-
An expeditious frequency change permits the aircraft to receive timely local airport traffic information in accordance with AC 90-42, Traffic Advisory Practices at Airports Without Operating Control Towers.

4-8-9. MISSED APPROACH

Except in the case of a VFR aircraft practicing an instrument approach, an approach clearance automatically authorizes the aircraft to execute the missed approach procedure depicted for the instrument approach being flown. An alternate missed approach procedure as published on the appropriate FAA Form 8260 may be assigned when necessary. Once an aircraft commences a missed approach, it may be radar vectored.

NOTE-
1. *Alternate missed approach procedures are published on the appropriate FAA Form 8260 only and require a detailed clearance when they are issued to the pilot.*

2. *In the event of a missed approach involving a turn, unless otherwise cleared, the pilot will proceed to the missed approach point before starting that turn.*

REFERENCE-
FAAO 7110.65, Practice Approaches, Para 4-8-11.
FAAO 7110.65, Vectors Below Minimum Altitude, Para 5-6-3.
FAAO 7110.65, Successive or Simultaneous Departures, Para 5-8-3.
FAAO 8260.19, Flight Procedures and Airspace, Paras 404 and 815.
FAAO 8260.3, United States Standard for Terminal Instrument Procedures (TERPS), Paras 275, 278, 943, 957, and 997.

4-8-10. APPROACH INFORMATION

Specify the following in the approach clearance when the pilot says he/she is unfamiliar with the procedure:

a. Initial approach altitude.

b. Direction and distance from the holding fix within which procedure turn is to be completed.

c. Altitude at which the procedure turn is to be made.

d. Final approach course and altitude.

e. Missed approach procedures if considered necessary.

PHRASEOLOGY-
INITIAL APPROACH AT (altitude), PROCEDURE TURN AT (altitude), (number) MINUTES/MILES (direction), FINAL APPROACH ON (name of NAVAID) (specified) COURSE/RADIAL/AZIMUTH AT (altitude).

4-8-11. PRACTICE APPROACHES

Except for military aircraft operating at military airfields, ensure that neither VFR nor IFR practice approaches disrupt the flow of other arriving and departing IFR or VFR aircraft. Authorize, withdraw authorization, or refuse to authorize practice approaches as traffic conditions require. Normally, approaches in progress should not be terminated.

NOTE-
The priority afforded other aircraft over practice instrument approaches is not intended to be so rigidly applied that it causes grossly inefficient application of services.

a. Separation.

1. IFR aircraft practicing instrument approaches shall be afforded standard separation in accordance with Chapter 3, Chapter 4, Chapter 5, Chapter 6, and Chapter 7 minima until:

(a) The aircraft lands, and the flight is terminated, or

(b) The pilot cancels the flight plan.

2. Where procedures require application of IFR separation to VFR aircraft practicing instrument approaches, standard IFR separation in accordance with Chapter 3, Chapter 4, Chapter 5, Chapter 6, and Chapter 7 shall be provided. Controller responsibility for separation begins at the point where the approach clearance becomes effective. Except for heavy aircraft/B757, 500 feet vertical separation may be applied between VFR aircraft and between a VFR and an IFR aircraft.

REFERENCE-
FAAO 7210.3, Practice Instrument Approaches, Para 6-4-4.
FAAO 7210.3, Practice Instrument Approaches, Para 10-4-5.

3. Where separation services are not provided to VFR aircraft practicing instrument approaches, the controller shall;

(a) Instruct the pilot to maintain VFR.

(b) Advise the pilot that separation services are not provided.

PHRASEOLOGY-
"(Aircraft identification) MAINTAIN VFR, PRACTICE APPROACH APPROVED, NO SEPARATION SERVICES PROVIDED."

(c) Provide traffic information or advise the pilot to contact the appropriate facility.

4. If an altitude is assigned, including at or above/below altitudes, the altitude specified must meet MVA, minimum safe altitude, or minimum IFR altitude criteria.

REFERENCE-
FAAO 7110.65, Altitude Assignments, Para 7-7-5.

5. All VFR aircraft shall be instructed to maintain VFR on initial contact or as soon as possible thereafter.

NOTE-
This advisory is intended to remind the pilot that even though ATC is providing IFR-type instructions, the pilot is responsible for compliance with the applicable parts of the CFR governing VFR flight.

b. Missed Approaches.

1. Unless alternate instructions have been issued, IFR aircraft are automatically authorized to execute the missed approach depicted for the instrument approach being flown.

REFERENCE-
FAAO 7110.65, Missed Approach, Para 4-8-9.

2. VFR aircraft are not automatically authorized to execute the missed approach procedure. This authorization must be specifically requested by the pilot and approved by the controller. When a missed approach has been approved, separation shall be provided throughout the missed approach.

REFERENCE-
FAAO 7110.65, Visual Separation, Para 7-2-1.

4-8-12. LOW APPROACH AND TOUCH-AND-GO

Consider an aircraft cleared for a touch-and-go, low approach, or practice approach as an arriving aircraft until that aircraft touches down or crosses the landing threshold; thereafter, consider the aircraft as a departing aircraft. Before the aircraft begins its final descent, issue the appropriate departure instructions the pilot is to follow upon completion of the approach (in accordance with para 4-3-2, Departure Clearances). Climb-out instructions must include a specific heading or a route of flight and altitude, except when the aircraft will maintain VFR and contact the tower.

EXAMPLE-
"After completing low approach, climb and maintain six thousand. Turn right, heading three six zero."

"Maintain VFR, contact tower."

(Issue other instructions as appropriate.)

NOTE-
Climb-out instructions may be omitted after the first approach if instructions remain the same.